UNITED STATES DEPARTMENT OF AGRICULTURE

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CONTRIBUTION FROM THE FEDERAL HORTICULTURAL BOARD
C. L. MARLATT, CHAIRMAN, IN COLLABORATION WITH
THE BUREAU OF PLANT INDUSTRY
W. A. TAYLOR, CHIEF

FOREIGN PLANT DISEASES

A MANUAL OF ECONOMIC PLANT DISEASES WHICH ARE NEW TO OR NOT WIDELY DISTRIBUTED IN THE UNITED STATES

PREPARED BY

JOHN A. STEVENSON

Chief Pathological Inspector, Federal Horticultural Board

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Ground ivy ... Nepeta.
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Mandioca	Manihot.
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Marsh marigold	Caltha.
Masterwort	Astrantia.
Maté	Ilex.
Matrimony vine	Lycium.
May apple	Podophyllum.
Meadow rue	Thalictrum.
Meadowsweet	Filipendula.
Medick	Medicago.
Medlar	Mespilus.
Melic grass	Melica.
Melon	Cucumis.
Mesquite	Prosopis.
Mexican poppy	Argemone.
Mexican rubber tree	Castilla.
Michaelmas daisy	Aster.
Mignonette	Reseda.
Milk vetch	Astragalus.
Milkweed	Asclepias.
Millet, broomcorn	Panicum.
Millet, pearl	Pennisetum.
Millet	Setaria.
Millet grass	Milium.
Mint	Mentha.
Mist flower	Eupatorium.
Moccasin flower	Cypripedium.
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Mullein	Verbascum.
Muskmelon	Cucumis.
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Oat grass	Arrhenatherum.
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Oregon grape	Berberis.
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Periwinkle ..... Vinca.
Persimmon ..... Diospyros.
Peruvian bark ..... Cinchona.
Peruvian lily ..... Alstroemeria.
Physic nut ..... Jatropha.
Pickerel weed ..... Pontederia.
Pigeon pea ..... Cajanus.
Pimpernel ..... Anagallis.
Pine ..... Pinus.
Pineapple ..... Ananas.
Pink ..... Dianthus.
Pinkroot ..... Spigelia.
Pistache ..... Pistacia.
Pitcher plant ..... Nepenthes.
Planetree ..... Platanus.
Plantain ..... Musa.
Plaintain lily ..... Hosta.
Plum ..... Prunus.
Plume poppy ..... Bocconia.
Plumeria ..... Plumeria.
Poinsettia ..... Euphorbia.
Pokeberry ..... Phytolacca.
Pokeweed ..... Phytolacca.
Polypody ..... Polypodium.
Pomegranate ..... Punica.
Poplar ..... Populus.
Poplar, yellow ..... Liriodendron.
Poppy ..... Papaver.
Poppy, celandine ..... Chelidonium.
Poppy, horn ..... Glaucium.
Poppy, Mexican ..... Argemone.
Potato ..... Solanum.
Pot marigold ..... Calendula.
Prayer bead ..... Abrus.
Prickle poppy ..... Argemone.
Prickly ash ..... Zanthoxylum.
Prickly pear ..... Opuntia.
Prickly thrift ..... Acantholimon.
Primrose ..... Primula.
Primrose willow ..... Jussiaea.
Privet ..... Ligustrum.
Pumpkin ..... Cucurbita.
Purple loosestrife ..... Lythrum.
Purslane ..... Portulaca.

Quaking grass ..... Briza.
Quince ..... Cydonia.
Quinine ..... Cinchona.
Quinoa ..... Chenopodium.

Rabbit-tail grass ..... Lagurus.
Radish ..... Raphanus.
Raisin tree ..... Hovenia.
Ramie ..... Boehmeria.
Rape ..... Brassica.
Raspberry ..... Rubus.
Rattlebox ..... Crotalaria.
Ravenna grass ..... Erianthus.
Redbud ..... Cercis.
Red cedar ..... Juniperus.
Red pepper ..... Capsicum.
Redtop ..... Agrostis.
Red valerian ..... Centranthus.
Reed ..... Phragmites.
Reed canary grass ..... Phalaris.
Reed, giant ..... Arundo.
Rest-harrow ..... Ononis.
Rhodes grass ..... Chloris.
Rhubarb ..... Rheum.
Rice ..... Oryza.
Rice, wild ..... Zizania.
Rock brake ..... Cryptogramma.
Rock cress ..... Arabis.
Rock jasmine ..... Androsace.
Rock purslane ..... Calandrinia.
Rockrose ..... Cistus.
Rosary bean ..... Rhynchosia.
Rosary pea ..... Abrus.
Rose ..... Rosa.
Rose apple ..... Jambosa.
Rose mallow ..... Hibiscus.
Rosemary ..... Rosmarinus.
Rose myrtle ..... Rhodomyrtus.
Rosewood ..... Dalbergia.
Rouge plant ..... Rivina.
Royal fern ..... Osmunda.
Royal poinciana ..... Poinciana.
Rubber, ceara ..... Manihot.
Rubber, Mexican ..... Castilla.
Rubber, Para ..... Hevea.
Rubber vine ..... Cryptostegia.
Rue ..... Ruta.
Russian olive ..... Elaeagnus.
Rutabaga ..... Brassica.
Rye ..... Secale.
Rye grass ..... Lolium.

St. Bernard's lily ..... Anthericum.
St.-John's-wort ..... Hypericum.
Safflower ..... Carthamus.
Sage ..... Salvia.
Sago palm ..... Cycas.
Salal ..... Gaultheria.
Salsify, black ..... Scorzonera.
Saltbush ..... Atriplex.
Sandalwood ..... Santalum.
Sand-box tree ..... Hura.
Sandwort ..... Arenaria.
Sapodilla ..... Achras.
Sapote ..... Lucuma.
Sarsaparilla ..... Aralia.
Saxifrage ..... Saxifraga.
Saxifrage, golden ..... Chrysosplenium.
Screw pine ..... Pandanus.
Scurf pea ..... Psoralea.
Sea buckthorn ..... Hippophae.
Sea grape ..... Coccoloba.
Sea holly ..... Eryngium.
Sea onion ..... Urginea.
Sea pink ..... Armeria.
Sea pink ..... Statice.
Self-heal ..... Brunella.
Sensitive fern ..... Onoclea.
Sensitive plant ..... Mimosa.
Serpent root ..... Scorzonera.
Service berry ..... Amelanchier.
Sesame ..... Sesamum.
Shad blow ..... Amelanchier.
Shadbush ..... Amelanchier.
Shallot ..... Allium.
Shinleaf ..... Pyrola.
Siberian pea tree ..... Caragana.
Silk cotton ..... Bombax.
Silk cotton ..... Ceiba.
Silk oak ..... Grevillea.
Silk-tassel bush ..... Garrya.
Silk vine ..... Periploca.
Silver climber ..... Argyreia.
Silver tree ..... Leucadendron.
Sisal ..... Agave.
Skullcap ..... Scutellaria.
Sky flower ..... Duranta.
Smartweed ..... Polygonum.
Snail seed ..... Cocculus.
Snakebeard ..... Ophiopogon.
Snake gourd ..... Trichosanthes.
Snake palm ..... Amorphophallus.
Snapdragon ..... Antirrhinum.
Snapweed ..... Impatiens.
Sneezewort ..... Achillea.
Snowbell ..... Styrax.
Snowberry ..... Symphoricarpus.
Snowdrop ..... Galanthus.
Snowflake ..... Leucojum.
Snow-in-summer ..... Cerastium.
Soapberry ..... Sapindus.
Soapwort ..... Saponaria.
Solomonseal ..... Polygonatum.

Solomonseal, false	Smilacina.
Sorghum	Holcus.
Sorrel	Rumex.
Soursop	Annona.
Sow thistle	Sonchus.
Soy bean	Soja.
Spanish almond	Terminalia.
Spanish moss	Tillandsia.
Spanish oyster plant	Scolymus.
Spanish plum	Spondias.
Spatter-dock	Nymphaea.
Speedwell	Veronica.
Spiderflower	Cleome.
Spider lily	Hymenocallis.
Spiderwort	Tradescantia.
Spiked loosestrife	Lythrum.
Spikenard	Aralia.
Spinach	Spinacia.
Spinach, New Zealand	Tetragonia.
Spirea	Spiraea.
Spleenwort	Asplenium.
Spring beauty	Claytonia.
Spruce	Picea.
Spurge	Euphorbia.
Spurry	Spergula.
Squash	Cucurbita.
Squill	Scilla.
Squirreltail grass	Hordeum.
Star apple	Chrysophyllum.
Star flower	Trientalis.
Star glory	Quamoclit.
Star gooseberry	Phyllanthus.
Star grass	Aletris.
Star grass	Hypoxis.
Star-of-Bethlehem	Ornithogalum.
Sting lily	Blumenbachia.
Stock	Matthiola.
Stone cress	Aethionema.
Stonecrop	Sedum.
Stone mint	Cunila.
Strawberry	Fragaria.
Strawberry tree	Arbutus.
Sudan grass	Holcus.
Sugar apple	Annona.
Sugar beet	Beta.
Sugar cane	Saccharum.
Sugar palm	Arenga.
Sunflower	Helianthus.
Sumac	Rhus.
Summer cypress	Kochia.
Sunn hemp	Crotolaria.
Sun rose	Helianthemum.
Surinam cherry	Eugenia.
Swan-River daisy	Brachycome.
Sweet alyssum	Alyssum.
Sweet bay	Laurus.
Sweet clover	Melilotus.
Sweet flag	Acorus.
Sweetleaf	Symplocos.
Sweet pea	Lathyrus.
Sweet potato	Ipomoea.
Sweet shrub	Calycanthus.
Sword bean	Canavalia.
Sword fern	Nephrolepis.
Sycamore	Platanus.
Syringa	Philadelphus.
Tail grape	Artabotrys.
Tallow tree, Chinese	Sapium.
Tamarack	Larix.
Tamarind	Tamarindus.
Tangerine	Citrus.
Tansy	Tanacetum.
Tea	Thea.
Teak	Tectona.
Teasel	Dipsacus.
Teff	Eragrostis.
Teosinte	Euchlaena.
Thatch palm	Thrinax.
Thistle, sow	Sonchus.
Thistle, globe	Echinops.
Thoroughwort	Eupatorium.
Thrift	Statice.
Thyme	Thymus.
Tick clover	Melibomia.
Timothy	Phleum.
Toadflax	Linaria.
Tobacco	Nicotiana.
Tomato	Lycopersicum
Tomato, husk	Physalis.
Toothwort	Dentaria.
Touch-me-not	Impatiens.
Towel gourd	Luffa.
Traveler's-tree	Ravenala.
Tree fern	Alsophila.
Tree fern	Cyathea.
Treemallow	Lavatera.
Tree-of-heaven	Ailanthus.
Tree tomato	Cyphomandra.
Trout lily	Erythronium.
Trumpet bush	Tecoma.
Trumpet creeper	Bignonia.
Tuft root	Dieffenbachia.
Tulip	Tulipa.
Tulip tree	Liriodendron.
Tunic flower	Tunica.
Turmeric	Curcuma.
Turnip	Brassica.
Twayblade	Liparis.
Twinleaf	Jeffersonia.
Twin spur	Melasphaerula.
Udo	Aralia.
Unicorn plant	Martynia.
Valerian	Valeriana.
Vegetable oyster	Tragopogon.
Venus-looking-glass	Specularia.
Vetch	Vicia.
Vine spinach	Basella.
Violet	Viola.
Virginia creeper	Ampelopsis.
Wahoo	Euonymus.
Wallflower	Cheiranthus.
Walnut	Juglans.
Wand flower	Sparaxis.
Water chestnut	Trapa.
Water cress	Nasturtium.
Water cress	Radicula.
Water lettuce	Pistia.
Water lily	Nymphaea.
Watermelon	Citrullus.
Water soldier	Stratiotes.
Wattle	Acacia.
Wax plant	Hoya.
Weaversbroom	Spartium.
Wheat	Triticum.
Wheat grass	Agropyron.
Weigelia	Diervilla.
White alder	Clethra.
White cedar	Chamaecyparis.
White sapote	Casimiroa.
Whitlow grass	Draba.
Wild calla	Calla.
Wild ginger	Asarum.
Wild rice	Zizania.
Wild rye	Elymus.
Willow	Salix.
Willow weed	Epilobium.
Windflower	Anemone.
Wing nut	Pterocarya.
Winter creeper	Euonymus.
Wisteria	Wisteria.
Winter aconite	Eranthis.
Winter cress	Barbarea.
Witch-hazel	Hamamelis.
Wintergr n	Gaultheria.
Woodbetony	Pedicularis.
Wood fern	Aspidium.
Wood fern	Dryopteris.
Wood fern	Phegopteris.
Wood-oil tree	Aleurites.
Woodruff	Asperula.
Wood rush	Luzula.
Wormwood	Artemisia.
Yam	Dioscorea.
Yam bean	Pachyrhizus.
Yautia	Xanthosoma.
Yautia	Colocasia.
Yarrow	Achillea.
Yellow mombin	Spondias.
Yew	Taxus.
Yellow poplar	Liriodendron.
Yellow rocket	Barbarea.
Yellowwood	Cladrastis.
Zephyr lily	Zephyranthes.

FOREIGN PLANT DISEASES

A MANUAL OF ECONOMIC PLANT DISEASES WHICH ARE NEW TO OR NOT WIDELY DISTRIBUTED IN THE UNITED STATES

This publication has been prepared for the purpose of supplying such available information as is required by the officers of the Federal Horticultural Board and others in the enforcement of plant quarantines and in the safeguarding of this country against foreign plant diseases. It is hoped that it will prove of value not only to inspectors in actually preventing entry of specific diseases, but that it will aid in a general way in pointing out the magnitude of the quarantine problem by presenting the very great number of plant diseases reported from foreign countries which are not known in the United States.

The manual is based on the data contained in the host index of foreign plant diseases maintained in the Office of Foreign Plant Quarantines of the Federal Horticultural Board. This file, which has now reached a total of several hundred thousand entries, is planned to cover the plant pathological literature of the world from the host standpoint, and, while by no means complete as yet, is of such extent as to give an excellent basis for the work in hand. This host index was started in 1914 by R. Kent Beattie, pathologist in charge, Office of Foreign Plant Quarantines, and has been continued by him and his assistants since that time.

As a matter of convenience, an alphabetical arrangement according to their scientific names has been followed both for the hosts and the causal agents of the diseases thereunder.

The selection of host genera has in large part been based on the Standard Cyclopedia of Horticulture, those genera being included which contain one or more species of economic importance. A number of genera are included, for instance *Chenopodium* and *Amaranthus*, which consist mostly of weeds, but since some members of such genera are of value, all the foreign diseases of the entire genus are given in each case, since these diseases are in large part capable of attacking both the economic and noneconomic species.

Common names have been taken in large part from Standardized Plant Names and include only those in common and general use or those most likely to be met with by inspectors. Common names of generic significance are given in caps and small caps immediately following the generic name. Other common names of specific value only then follow in ordinary type. Common names of only local significance are omitted. The characterization of each host genus is drawn in large part from the cyclopedia already referred to.

Throughout the course of the work an attempt has been made to select the included material on a uniform basis. Species of parasitic fungi or bacteria known to occur more or less widely in the United

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States have been excluded. Species not so excluded and belonging to genera the members of which are parasitic for the most part, form the basis of the present work, together with species of other more or less saprophytic genera where specific mention of parasitism has been suggested. Some parasites are included which are reported from limited localities in the United States, it being advisable to guard against their further importation. A few fungi causing diseases of major importance and of comparatively recent introduction, such as *Endothia parasitica* which causes the chestnut blight, and *Cronartium ribicola*, which causes the white pine blister rust, are also listed. These still have interest or are of importance to inspectors. The records of the plant disease survey of the Bureau of Plant Industry have been helpful in determining established American plant diseases.

Under each fungus or bacterium listed there is given a brief summary of the symptoms of the disease produced by it, together with its specific hosts and the countries from which it has been reported as occurring. Diseases due to nematodes and to unknown causes supposed to be of an infectious nature are included. Limitations of space have made it impossible to cite the literature from which the information has been drawn. The citations are in the above-mentioned host index and are available for reference to anyone interested. For like reasons it has not been feasible to include illustrations.

It has not been possible to attempt a critical examination of the fungus species listed, although a few suggestions as to synonomy are made. It is realized that probably many fungi have been included which would prove harmless if introduced into America and that similarly many have been omitted which should properly find a place. The literature is so fragmentary as to make uniform treatment exceedingly difficult, if not impossible. The nomenclature used has been for the most part that of current usage. Certain monographic works, including Salmon on Erysiphaceae, Theissen and Sydow on Dothidiaceae, Sydow on Uredineae, Gauman on Peronospora, and others have been followed.

Because of the alphabetical arrangement of the material, indices other than the common-name index have been considered unnecessary.

The manuscript has been reviewed by the offices of Plant Disease Survey, Laboratory of Plant Pathology, Pathological Collections, Fruit Disease Investigations, Forest Pathology, Sugar Plant Investigations, Cotton, Truck, and Forage Crop Disease Investigations, and Cereal Investigations of the Bureau of Plant Industry. The nomenclature of the host genera has been checked by George B. Sudworth, dendrologist of the Forest Service and by F. V. Colville and S. F. Blake, of the Office of Economic and Systematic Botany. It has been necessary for the most part to use the host names given in the literature. Obviously it was not possible to handle the subject critically. Where the generic plant name thus used differs from that now recognized by the Department of Agriculture, the department name, together with the abbreviation Ag., follows it; for example, ABERIA. DOVYALIS. Ag.

ABERIA. DOVYALIS Ag. Small ornamental trees or shrubs of Africa and Ceylon.

Asterostromella aberiae Petch. On leaves of *A. gardneri* in Ceylon.

Phyllachora aberiae P. Henn. Tar spot on leaves of *A. caffra* in the Union of South Africa.

ABIES. FIR. Ornamental coniferous evergreens and timber trees.

Barclayella deformans (Barcl.) Diet. See Picea.

Camarosporium abietis Wilson. Attacks twigs and small branches of *A. lowiana* in Scotland.

Cucurbitaria pithyophila Fr. See Pinus.

Dasyscypha abieticola Henn. and Shir. Produces a canker on trunks and limbs of *A. homolepis* (*A. brachyphylla*) and *A. firma* in Japan.

Dasyscypha willkommii Hart. See Larix.

Diplodia abiegna Maubl. On living needles of *A. concolor* in France.

Fusicoccum abietinum (Hart.) Prill. and Delacr. (*Dothiorella pithya* Sacc.) This fungus produces cankers on the branches, which die as a result of girdling. Black stromata are produced on the cankered areas. On *A. alba* (*A. pectinata*) and *Abies* sp. in France and Germany. Reported from Ohio on *A. veitchii*, an introduced ornamental type.

Lophodermium abietis Rostr. See Picea.

Melampsora abieti-caprearum Tub. See Salix.

Melampsorella symphyti Bub. See Symphytum.

Mycosphaerella abietis (Rostr.) Lind. On leaves and shoots of *A. alba*, *A. arizonica*, *A. cephalonica*, *A. nordmanniana*, and *A. pinsapo* in Denmark.

Oospora abietum Oudem. A single row of minute greenish-gray tufts on each side of the median line and on both surfaces of needles of *A. nordmanniana*, *A. pinsapo*, *Picea abies*, and *Pseudotsuga taxifolia* in Holland. Defoliation may result.

Phomopsis pseudotsugae Wilson. See Pseudotsuga.

Physalospora abietina Prill. and Delacr. On *A. alba* (*A. pectinata*) and *Picea abies* in France.

Phytophthora fagi R. Htg. See Fagus.

Rehmiellopsis bohemica Bub. and Kab. (*Phoma bohemica* Bub. and Kab.) The leaves of the current year are attacked soon after expanding and rapidly shriveled. They turn red at first, then become darker, and remain hanging about a year. The fungus spreads into the shoots, which die back and with some host species twist and curve. The disease is so severe that planting of silver fir (*A. pectinata*) has been discontinued to a large extent in Scotland. Other hosts are *A. alba*, *A. cephalonica*, *A. nobilis*, *A. pindrow*, and *A. pinsapo* in Scotland, Bohemia, and probably other European countries.

Rhizothyrium abietis Naoumoff. On needles of *A. sibirica* in Russia.

Sclerotiopsis piceana (Karst.) Diet. See Picea.

ABRUS. ROSARY PEA. Leguminous vine common throughout the Tropics, sometimes called "prayer bead."

Phyllachora perforans (Rehm.) Sacc. and Syd. Tar spot on leaves of *A. precatorius* in Porto Rico.

Ravenelia ornata Syd. A rust producing yellow-brown to black pustules on lower surface of leaves of *A. precatorius* and *A. pulchellus* in India, Ceylon, and the Philippines.

Uredo karnbachii P. Henn. This rust produces yellow-brown pustules on the lower (rarely on the upper) leaf surfaces of *A. precatorius* in New Guinea.

ABUMON. See Agapanthus.

ABUTILON. Malvaceous shrubs or herbs, some species cultivated.

Ascochyta abutilonis Höll. Causing a leaf spot of *A. theophrasti* (*A. avicennae*) in Hungary.

Gloeosporium leptostromoides Bub. Small dark-brown pustules on stems of *Abutilon* sp. in Austria.

Meliola molleriana Wint. Black sooty mold on leaves of *A. striatum* and *Abutilon* sp. in Brazil and Argentina.

Phyllosticta abutilonis P. Henn. Circular, gray leaf spots with brown margins on *Abutilon* sp. in Brazil.

Puccinia abutili B. and Br. This rust appears as powdery brown pustules on both leaf surfaces of *A. graveolens*, *A. indicum*, *A. muticum*, and *A. sonneratianum* in Ceylon, Abyssinia, Somali coast, central and south Africa.

ACACIA. Tropical and subtropical ornamental leguminous trees and shrubs. Several species of economic importance for gums, resins, tanning extracts, and gum arabic. A number of species are known as "wattle."

Aecidium esculente Barcl. This rust distorts and renders succulent the young shoots of *A. eburnea* in India.

Aecidium immersum P. Henn. The aecia of this rust occur on flesh-colored galls on young twigs of *A. abyssinica* in Eritrea.

Aecidium schweinfurthii P. Henn. A rust causing galls on twigs of *A. seyal* in Somali.

Aecidium torquens McAlp. Leaf rust on *A. abyssinica* in Abyssinia.

Ascochyta borjomi Bond. Circular, white leaf spots with dark brown margins on *Acacia* sp. in Russia.

Catacauma acaciae Theiss. and Syd. Forms numerous black, circular, shiny spots on upper surface of leaves of *A. leucophloea* in India.

Cercospora alemquerensis Speg. Leaf spot on *A. alemquerensis* in Brazil.

Cercosporella theae Petch. See Thea.

Corticium salmonicolor B. and Br. See Citrus.

Hapalophragmium acaciae Bacc. Leaf rust on *A. nubica* in Abyssinia.

Hapalophragmium ponderosum Syd. and Butl. The brown telial sori of this rust occur on woody galls, 1 to 5 centimeters in diameter on twigs of *A. leucophloea* in India.

Marsonia acaciae Cke. and Mass. Produces irregular spots on the phyllodes, which are pale-brown to whitish, brown-margined, 0.5 to 1 centimeter in diameter and often confluent. On *Acacia* sp. in Australia.

Phyllachora acaciae P. Henn. Small, circular, shiny black spots on both sides of leaves of *A. amentacea*, *A. farnesiana*, and *A. tortuosa* in Ecuador, Mexico, and St. Thomas.

Phyllachora indica Theiss. and Syd. A similar tar-spot disease on leaves of *A. penninervis* in India, Ceylon, and adjoining islands.

Phyllachora parvicapsa (Cke.) Theiss. and Syd. This fungus produces black convex stromata on leaves of *Acacia* sp. in Australia.

Phyllosticta acaricola P. Henn. Amphigenous, dark brown spots, becoming lighter and drying out on leaves of *A. ramosissima* in Germany.

Phyllosticta pedicellata Speg. Leaf spot on *A. pedicellata* in Brazil.

Phyllosticta phyllodiorum Sacc. On phyllodes of *Acacia* sp. in Australia.

Physalospora phyllodii Cke. and Mass. On phyllodes of *A. longifolia* and *A. suaveolens* in Australia.

Ravenelia acaciae-melliferae Bacc. Rust on *A. millifera* in Abyssinia.

Ravenelia acaciae-micranthae Diet. A rust producing dark-brown pustules on both surfaces of leaves of *A. micrantha* in Mexico.

ACACIA—Continued.

Ravenelia acaciae-pennatulae Diet. Powdery, cinnamon-brown to blackish-brown pustules on upper surfaces of leaves of *A. cochliacantha* and *A. pennatula* in Mexico.

Ravenelia australis Diet. and Neg. Dark-brown pustules on leaves of *A. cavenia* in Chile. What is probably the same species is reported from Texas on *A. farnesiana*.

Ravenelia deformans (Maubl.) Diet. This rust produces yellow to brown pustules on branchlets of *Acacia* sp. in Portuguese East Africa.

Ravenelia escharoides Syd. Yellow-brown to black rust pustules on leaves of *A. burkei* in the Union of South Africa.

Ravenelia evansii Syd. Rust similar to above on leaves of *A. robusta* in the Union of South Africa.

Ravenelia expansa Diet. and Holw. Cinnamon-brown to chestnut-brown rust pustules on both leaf surfaces of *A. tequilana* in Mexico.

Ravenelia farlowiana Diet. Chestnut-brown to dark-brown pustules on leaves of *A. anisophylla*, *A. crassifolia*, and *A. micrantha* in Mexico.

Ravenelia formosana Syd. Rust on *A. farnesiana* in Formosa.

Ravenelia inornata Diet. Yellow to chestnut-brown pustules on lower leaf surfaces of *A. horrida* in the Union of South Africa.

Ravenelia inquirenda Arth. and Holw. Rust on leaves of *A. bursaria* in Guatemala.

Ravenelia macowaniana Pazschke. A rust, the cluster-cup stage of which deforms the pods and young branches, and the other stages of which form brown pustules on the leaves of *A. horrida* and *A. seyal* in Central and South Africa.

Ravenelia natalensis Syd. and Evans. A rust on the branches of *A. hirtella* in the Union of South Africa.

Ravenelia papillosa Speg. See Albizzia.

Ravenelia pegleræ Pole-Evans. Rust on *A. eriadenia* in the Union of South Africa.

Ravenelia pretoriensis Syd. Yellow-brown to black rust pustules on leaves of *Acacia* sp. in the Union of South Africa.

Ravenelia stevensii Arth. Rust on the leaves of *A. riparia* in Porto Rico.

Ravenelia volkensii P. Henn. Chestnut-brown rust pustules in diseased areas on branches of *Acacia* sp. and *A. seyal* in Central Africa.

Septobasidium acaciae Saw. Brown patches of feltlike fungus growth on trunks and twigs of *A. richi*, *Citrus* sp., *Glochidion obovatum*, *Melia azedarach*, *Prunus persica*, *P. salicina*, *Saliz glandulosa*, and *Thea sinensis* in Formosa. Reported to have killed entire trees at times.

Septoria martiniana Sacc. On phyllodes of *A. longifolia* in Australia.

Septoria melanoxyli Wint. A leaf spot of *A. melanoxylon* in Portugal.

Septoria mortolensis Penz. and Sacc. On leaves of *Acacia* sp., *Eucalyptus amygdaloides*, and *Hedera algeriensis* in Italy. Reported from California.

Sphaeropsis silveirae Speg. Leaf rust on *A. pedicellata* in Brazil.

Uredo alemquerensis Speg. Leaf rust on *A. alemquerensis* in Brazil.

Uredo puttermansii P. Henn. A rust appearing as brown, powdery pustules on dark-brown leaf spots of *Acacia* sp. in Brazil.

Uromyces bicinctus McAlp. This rust produces ruddy-brown, raised pustules on phyllodes and pods of *A. fasciculifera* in Queensland.

Uromyces discoidens Racib. On phyllodes of *Acacia* sp. in Java.

Uromyces fusisporus Cke. and Mass. Produces dark-brown to black erumpent rust pustules, solitary or in groups, on phyllodes of *A. neriifolia*, *A. salicina*, and *Acacia* sp. in Australia.

Uromyces hyalosporus Saw. A rust reported from Japan and Formosa as causing a serious disease of *A. confusa* by deforming phyllodes and twigs.

Uromyces phyllodiorum (B. and Br.) McAlp. Rust-brown pustules on phyllodes of *A. aulacocarpa*, *A. binervata*, *A. crassicarpa*, *A. cunninghami*, *A. dallachiana*, *A. dealbata*, *A. excelsa*, *A. gonoclada*, *A. holosericea*, *A. leptocarpa*, *A. linifolia*, *A. microbotyra*, *A. neriifolia*, *A. notabilis*, *A. penninervis*, and *A. pruinosa* in Australia.

Uromyces schweinfurthii P. Henn. Ferruginous rust pustules on slightly deformed areas on branches of *A. ehrenbergiana* and *A. flava* in Arabia and Abyssinia.

Uromycladium acaciae (Cke.) Syd. Brown rust pustules on branches, leaves and pods of *A. dealbata* in Australia.

Uromycladium alpinum McAlp. Rusty-brown rust pustules on both leaf surfaces, phyllodes and pods of *A. burifolia*, *A. dallachiana*, *A. dealbata*, *A. implexa*, and *A. linifolia* in Australia.

Uromycladium maritimum McAlp. Dark-brown rust pustules on phyllodes and stems of *A. longifolia* in Australia and Tasmania.

Uromycladium notabile (Ludw.) McAlp. This rust produces large, swollen, distorted galls, yellow-brown to chocolate-brown in color, on branches, phyllodes, and pods of *A. binervata*, *A. dealbata*, *A. decurrens*, *A. elata*, *A. notabilis*, and *A. pruinosa* in Australia and Tasmania.

Uromycladium robinsoni McAlp. Rust pustules brown, on both surfaces of phyllodes of *A. melanoxylon* in Australia and Tasmania.

Uromycladium simplex McAlp. A rust which produces red-brown to dark-brown pustules on both surfaces of phyllodes and on branches of *A. pycnantha* in Australia.

Uromycladium tepperianum (Sacc.) McAlp. A rust-producing gall-like masses along entire length of leaves or phyllodes, and large, nearly spherical galls or broadly effused areas on branches coated with brown, powdery spores. On *A. acuminata*, *A. armata*, *A. calamifolia*, *A. diffusa*, *A. erioclada*, *A. eriophylla*, *A. flavescens*, *A. glaucoptera*, *A. hakeoides*, *A. inflexa*, *A. juniperina*, *A. longifolia*, *A. melanoxylon*, *A. myrtifolia*, *A. pendula*, *A. pycnantha*, *A. rigens*, *A. salicina*, *A. sieuliformis*, *A. spinescens*, *A. stricta*, *A. torulosa*, *A. verniciflua*, *A. verticillata*, and *A. vomeriformis*, in Australia and Tasmania, and on *Albizzia montana* in Java.

ACAENA. New Zealand bur. Herbaceous or partly woody trailing ornamentals.

Catacauma acaenae (P. Henn.) Theiss. and Syd. Black convex areas on the upper surfaces of leaves of *A. ovalifolia* in Chile.

Ustilago acaenae Diet. and Neg. A smut reported on the leaves of *Acaena* sp. in Chile.

ACALYPHA. Copper-leaf. Tropical or greenhouse ornamental shrubs or herbs, many varieties with highly colored foliage.

Aecidium acalyphae P. Henn. Rust on leaves of *Acalypha* sp. in the Congo.

Cercospora profusa Syd. Causes spots on lower surfaces of leaves of *A. australis* in Japan.

Melampsora acalyphae Petch. Brown rust on leaves of *A. fruticosa* in Ceylon.

Phyllosticta brioslana Trav. More or less circular gray spots, 2 to 8 millimeters in diameter, on upper leaf surfaces of *A. virginica* in Italy.

Puccinia evansii P. Henn. A rust on leaves and stems, often deforming the parts attacked. Occurs on *Acalypha* sp. in the Union of South Africa.

Roesellinia bunodes B. and Br. See Citrus.

Septoria cavarae Scalia. Olive-colored subcircular spots on leaves of *Acalypha* sp. in Sicily.

Uredo paulistana Speg. Rust on leaves of *Acalypha* sp. in Brazil.

ACANTHOLIMON. PRICKLY THRIFT. Hardy evergreen perennials.

Uromyces acantholimonis Syd. Brown to black rust pustules on leaves of *A. schirasianum* in Persia and Turkestan.

ACANTHOPANAX. Hardy shrubs or trees with ornamental foliage.

Aecidium acanthopanacis Diet. Rust on leaves of *A. spinosum* in Japan.

Mycosphaerella acanthopanacis Syd. Leaf spot of *A. ricinifolium* in Japan.

Phyllosticta acanthopanacis Syd. Leaf spot of *A. ricinifolium* in Japan.

Triphragmium thwaitesii B. and Br. Black, powdery rust pustules occurring on yellow to brown spots, 1 to 2 centimeters in diameter on both leaf surfaces of *A. innovans*, *A. sciadophylloides*, *Akebia* sp., *Hedera stellata*, and *Heptapleurum ellipticum* in Ceylon, Java and Japan.

ACANTHOPHOENIX. See Palmae.

ACANTHUS. BEARS-BREECH. Hardy herbaceous perennials.

Aecidium acanthi Lorr.—Sm. Rust on leaves of *Acanthus* sp. in east Africa.

Cercospora acanthi Pass. Brown spots on both leaf surfaces of *A. mollis*, *A. niger*, *A. spinosus*, and *A. spinulosus* in France, Italy, and Algeria.

Cercosporella compacta Trav. Brown leaf spots on *A. spinosus* in Italy.

Septoria acanthi Thuem. Circular, white spots, concentrically zoned on the upper sides of leaves of *A. mollis* in Algeria and Italy.

Septoria acanthina Sacc. and Magn. Subcircular, brown leaf spots on *A. mollis* in Italy.

ACER. MAPLE. Shade and timber trees.

Ascochyta acericola Massal. On *A. campestre* in Italy.

Ascochyta pallida Kab. and Bub. Circular to irregular brown spots on both sides of leaves of *A. platanoides* in Bohemia.

Ascochyta velata Kab. and Bub. On leaves of *A. platanoides* in Bohemia.

Cercospora acerina Hart. Attacks the cotyledons and stems of seedlings, often killing the plants. On *A. pseudoplatanus* in France and Germany.

Cercosporella acerina (Hart.) Arn. Brown spots on cotyledons of *Acer* sp. in Europe, causing death of seedlings.

Cylindrosporium acerellum (Sacc.) Died. (*Septoria acerella* Sacc.) Minute, angular, white spots on upper surfaces of leaves of *A. campestre* in France and Denmark.

Cylindrosporium platanoidis (Allesch.) Died. (*Septoria apatela* Allesch.) (*Septoria samarigens* Bub. and Krieg.) (*Septoria seminalis* Sacc.) Small brown leaf spots on *A. campestre* and *A. platanoides* in Europe.

Cylindrosporium pseudoplatani (R. and D.) Died. (*Septoria incondita* Desm.) (*S. pseudoplatani* R. and D.) Subcircular to irregular reddish or brown spots without definite margins on leaves and cotyledons of *A. campestre*, *A. platanoides*, and *A. pseudoplatanus* in Italy, France, Denmark, and Germany.

Dermatea acerina Karst. On *Acer* sp. in Europe.

Diaporthe longirostis Sacc. (*Gloeosporium acerinum* West.) On leaves of *A. platanoides*, *A. pseudoplatanus*, and *Acer* sp. in Great Britain, Belgium, Denmark, and Austria.

Discomycopsis rhytismoides J. Muell. Said to produce black spots on the leaves of *A. pseudoplatanus* in Germany. Probably *Rhytisma*.

Discosia artocreas Tode) Fr. On leaves of *A. campestre* in Italy.

Exoascus acericola Mass. and f. **pseudoplatani** Mass. Occurs on leaves of *A. campestre* and *A. pseudoplatanus* in Italy.

Exoascus acerinus Eliasson. Forms roughened discolored areas on leaves and branches of *A. platanoides* in Sweden.

Exoascus confusus Jacz. On leaves and branches of *A. campestre* in Russia.

Exoascus nikkoensis (Kus.) Sacc. and Trott. Forms grayish scurfs on pale-red or violet spots on under leaf surfaces of *A. purpurascens* in Japan.

Gnomonia inclinata (Desm.) Auersw. On *A. campestre* in Italy.

Guignardia acerifera (Cke.) Lind. (*Laestadia acerifera* [Cke.] Sacc.) On *A. campestre* in Great Britain.

Guignardia rhytismophila Rehm. On upper surface of leaves of *A. pseudoplatanus* in Germany.

Laestadia pseudoplatani Pass. On leaves of *A. pseudoplatanus* in France.

Leptothyrium acerinum (Kze.) Cda. Small, circular, black fruiting bodies on leaves of *A. californicum*, *A. campestre*, *A. opulifolium*, *A. palmatum*, *A. pictum*, and *A. platanoides* in middle and western Europe, the Balkan Peninsula, Great Britain, and Japan.

Marsonia acerina (West.) P. Magn. On *A. pseudoplatanus* in Europe.

Marsonia decolorans Kab. and Bub. On leaves, causing them to die back from the tips. On *A. negundo* in Bohemia and Denmark.

Marsonia truncatula Sacc. (*Marssonina truncatula* [Sacc.] Magn.) Ochraceous leaf spots on *A. campestre*, *A. monspessulanum*, *A. negundo*, and *A. tataricum* in Europe.

Mycosphaerella latebrosa (Cke.) Schroet. (*Phyllosticta platanoidis* Sacc.) Leaf spot on *A. campestre*, *A. negundo*, *A. opalus*, and *A. platanoides* in Europe. Possibly occurs to a limited extent in the United States.

Mycosphaerella maculiformis (Pers.) Schroet. On leaves of *A. campestre*, *A. opulifolium*, *A. platanoides*, *A. pseudoplatanus*, and *Morus alba* in France, Switzerland, Denmark, Esthonia, and Germany.

Myxosporium devastans Rostr. See Betula.

Parodiella aceris Rac. On leaves of *A. laurinum* in Java. The systematic position of this fungus is uncertain.

Phyllosticta aceris Sacc. Subcircular, pale-yellow spots on leaves of *A. campestre*, *A. monspessulanum*, *A. negundo*, and *A. platanoides* in France, Denmark, Italy, and Russia. Reported from Virginia and Minnesota.

Phyllosticta apatela All. and var. **perniciosa** Kab. and Bub. Large indefinite, pale-brown to gray spots on leaves of *A. platanoides* and *A. pseudoplatanus* in Bohemia and Germany.

Phyllosticta campestris Pass. Small, red to red-brown leaf spots on *A. campestre* and *A. pseudoplatanus* in France and Austria.

Phyllosticta negundicola Sacc. Small pale-yellow to white spots on leaves of *A. negundo* in France.

Phyllosticta obtusula Sacc. and Br. On leaves of *A. campestre* in Germany.

Phyllosticta platanoidis Sacc. On leaves of *A. campestre* and *A. platanoides* in Europe.

Phyllosticta pseudoplatani Sacc. and var. **fallax** Sacc. and Roum. On leaves of *A. campestre*, *A. pseudoplatanus* in Italy, France, Portugal, and Germany.

Phyllosticta tambowiensis Bub. and Sere. On leaves of *A. platanoides* in Russia.

Phytophthora fagi Hartig. See Fagus.

Phytophthora syringae Kleb. See Syringa.

Schizothyrium annuliforme Syd. Large, irregular, discolored areas on leaves of *A. oblongum* in India.

ACER—Continued.
Sclerotium scutellatum A. S. Orbicular, dark-brown sclerotia, on leaves of *Acer*, *Fraxinus*, and *Populus* in northern Europe.
Septogloeum hartigianum Sacc. The fungus causes the young twigs to dry up, preventing the buds from swelling. The mycelium spreads in the twigs during the summer, the effects not appearing until the following spring. This maple blight attacks *A. campestre* and *A. platanoides* in Italy, Russia, and Germany.
Septoria schirajewskii Bub. and Sere. On leaves of *A. platanoides* in Russia.
Synglonium insigne Penz. and Sacc. Forms black, cushion-shaped, carbonaceous fruiting bodies on leaves of *A. laurinum* in Java.
Taphrina polyspora (Sorok.) Johans. This fungus produces irregular, shiny, reddish-brown to black patches on leaves of *A. pseudoplatanus* and *A. tataricum* in Bulgaria, Serbia, Hungary, Scandinavia, Russia, and Germany.
Uncinula aceris (DC.) Sacc. and var. **tulasnei** Fckl. Powdery mildew on leaves of *A. campestre*, *A. monspessulanum*, *A. pictum*, *A. platanoides*, *A. pseudoplatanus*, *A. rubrum*, *A. spicatum*, and *A. tataricum* in Europe, Transcaucasia, and Japan.
ACHILLEA. Yarrow. Sneezewort. Herbaceous perennials.
Ascochyta millefolii Oud. On stems of *A. millefolium* in Holland.
Cercosporella achilleae Jasp. Circular to oblong brown spots on leaves of *A. macrophylla* and *A. microphylla* in Switzerland.
Entyloma achilleae P. Magn. A smut producing spots on leaves of *A. millefolium* in Switzerland, Sweden, Denmark, and Germany.
Peronospora radii De By. See Chrysanthemum.
Laestadia ptarmicae Karst. and Starb. On *A. ptarmica* in Finland.
Puccinia achilleae Cke. Rust on stems and leaves of *A. albicaulis* in Kurdistan.
Puccinia ptarmicae Karst. Yellow to yellow-brown rust pustules on leaves of *A. cartilaginea* and *A. ptarmica* in Belgium, Denmark, Sweden, Finland, Russia, and Germany.
Puccinia santolinae P. Magn. Rust on stems and leaves of *A. santolina* in Egypt.
Ramularia ptarmicae Lind. Small, subcircular, dark-brown leaf spots on *A. ptarmica* in Germany.
Schizothyrium ptarmicae Desm. This fungus appears as small, flat, black fruiting bodies on the leaves of *A. ptarmica*, bringing about a stunting of infected plants in Great Britain, France, Belgium, Denmark, Finland, Siberia, and Germany.
Septoria ptarmicae Passer. Causes a leaf spot of *A. ptarmica* in Italy.
Synchytrium globosum Schroet. See Potentilla.
Tuberculina microstigma Sacc. On leaves of *A. millefolium* in Germany.
Tylenchus millefolii Loew. This nematode produces numerous small galls and hypertrophied areas on stems of *A. millefolium* and *A. tanacetifolium* in Germany.
ACHRAS. Sapodilla. Fruit and ornamental tree. Furnishes the chicle of commerce.
Phyllosticta sapotae Sacc. Deep-brown, circular to irregular spots appearing on both leaf surfaces with ashen-brown margins. On *A. zapota* in Ceylon and the Bahamas.
Uredo sapotae Arth. and Johnston. Rust on leaves of *A. zapota* in Cuba and the Bahamas.
ACIDANTHERA. See Tritonia.
ACNISTUS. Ornamental tropical shrubs.
Puccinia acnisti Arth. Rust on leaves of *A. aggregatus* in Trinidad and Costa Rica.
ACONITUM. Monkshood. Aconite. Hardy perennial herbs.
Coleosporium aconiti Thuem. Rust on leaves of *A. barbatum* in Siberia.
Fusicladium aconiti Bres. On leaves of *A. clusium* in Hungary.
Phyllosticta aconitina Petr. Large, usually irregular, dark olive-green or brownish-green spots on leaves and sometimes on stems of *A. moldavicum* in Bohemia.
Puccinia lycoctoni Fckl. Yellow to yellow-brown rust pustules on leaves of *A. lycoctonum* in France, Italy, Switzerland, Norway, Austria, Hungary, India, and Germany.
Ramularia monticola Speg. On leaves of *A. lycoctonum*, *A. moldavicum*, and *A. napellus* in Italy and Austria.
Septoria aconiti Bacc. Circular, dark-brown leaf spots with definite margins on *Aconitum* sp. in China.
Septoria fuscomaculans Kab. and Bub. Oblong to irregular, often confluent, dark-brown spots on lower leaf surfaces of *A. paniculatum* in Tyrol.
Septoria lycoctoni Speg. including var. **sibirica** Sacc. and var. **macrospora** C. Mass. Ashen, irregular spots, with dark-brown margins, on leaves of *A. lycoctonum* and *Aconitum* sp. in Italy, Russia, and Siberia.
Septoria napelli Speg. On leaves of *A. napellus* in Italy and Yugoslavia.
ACORUS. Sweet flag. Aquatic plants.
Ascochyta acori Oud. On leaves of *A. calamus* in Holland.
Eriospora leucostoma B. and Br. On leaves of *A. gramineus* in Europe.
Leptosphaeria microscopica-calami Karst. On leaves of *A. calamus* in Italy.
Phyllosticta acorella Sacc. and Penz. Linear spots on both surfaces of leaves of *A. calamus* in France.
Phyllosticta acori Oud. Elongate black spots on leaves of *A. calamus* in Holland.
Physoderma calami Krieg. Subcircular to oblong brown spots on leaves of *A. calamus* in Germany.
Physoderma tenue Nowak. See Nymphaea.
Uredo acori Racib. Brown-rust pustules on leaves of *A. calamus* and *A. terrestris* in Java, India, and the Philippines.
ACRISTA. See Palmae.
ACROCOMIA. See Palmae.
ACTAEA. Baneberry. Herbaceous perennials.
Actinonema actaeae Allesch. Irregular, brown to black spots on leaves of *A. spicata* in Germany.
Coleosporium actaeae Karst. Yellow rust pustules on leaves of *A. erythrocarpa* and *A. rubra* in Siberia.
Didymascus kitmanoffi Sacc. On leaves of *A. spicata* in Siberia.
Marsonia actaeae Bres. Leaf spot of *A. spicata* in Denmark and Germany.
ACTINIDIA. Ornamental woody climbers.
Aecidum actinidiae Syd. Rust on leaves of *A. arguta* in Japan.
Gloeosporium sp. Anthracnose on leaves of *A. arguta* in Japan.
ACTINOSTEMMA. Ornamental vines.
Marsonia actinostemmae F. Tassi. Circular, dirty-brown, zonate spots on both surfaces of leaves of *A. paniculatum* in Italy.
ADENOCARPUS. Ornamental woody shrubs.
Aecidium bubakii Gz. Frag. On leaves of *A. intermedius* in Spain.

ADENOPHORA. LADYBELL. Hardy herbaceous perennials.
Aecidium adenophorae Jacz. Yellow rust pustules on yellow or brown leaf spots on *A. latifolia* and *A. verticillata* in Japan and Russia.
Aecidium adenophorae-verticillatae Syd. Leaf rust on *A. verticillata* in Japan.
Septoria adenophorae Thuem. Gray spots on leaves of *A. tricuspidata* in Siberia.
ADENOSTYLES. Herbaceous perennials.
Ascochyta adenostylis Kab. and Bub. Large, irregular, dirty-gray to dark-brown spots on leaves of *A. albifrons* in Tyrol.
Cercosporella septorioides Sacc. Angular gray spots on leaves of *A. albifrons* and *A. alliariae* in Switzerland and Austria.
Coleosporium cacaliae Otth. See Cacalia.
Phyllosticta adenostylis Allesch. Subcircular, often confluent, dark-brown spots on leaves of *A. alpina* in Germany.
Ramularia filaris Fres. Dull yellow, irregular leaf spots on *A. albifrons*, *A. alliariae*, *A. alpina*, and *Doronicum austriacum* in Italy, Bohemia, and Austria.
Uromyces cacaliae (DC.) Ung. Yellow-brown rust pustules on *A. albifrons*, *A. alliariae*, *A. alpini*, *A. auriculata*, *A. glabra*, *A. kerneri*, and *Cacalia* spp. in Japan, Rumania, Italy, Switzerland, Austria, Hungary, and Germany.
Uromyces veratri (DC.) Schroet. (*Aecidium adenostylis* Syd.) See *Veratrum*.
ADESMIA. Herbs or shrubs.
Protomyces vagabundus Speg. On stems of *A. punctata* and *Medicago denticulata* in Argentina.
Puccinia adesmiae P. Henn. Rust-producing globular galls on branches of *A. trijuga* in Argentina.
Puccinia bergii Speg. Cinnamon-colored rust pustules on leaves of *A. punctata* in Uruguay.
Uredo solitaria Dlet. and Neg. Dark-brown rust pustules on leaves of *A. radicifolia* in Chile.
ADIANTUM. MAIDENHAIR FERN.
Aphelenchus olesistus Ritz. Bos. See Begonia.
Catharinia pazschkeana Rehm. Greenish-gray to whitish irregular spots on leaves of *A. curvatum* in Brazil.
Hyalopsora adianti-capilli-veneris Syd. Yellow rust pustules on leaves of *A. capillus-veneris* in Spain, France, Italy, Austria, and Dalmatia.
Mycosphaerella rehmiana Jaap. On leaves of *A. capillus-veneris* in Dalmatia.
Phyllosticta adianticola Young. Brown leaf spots on *A. tenerum* in Porto Rico.
Septoria filicum (Desm.) Auersw. On leaves of *A. capillus-veneris* in Italy.
Uredinopsis adianti Kom. Rust pustules on leaves of *Adiantum* sp. in Manchuria.
Uredo gymnogrammes P. Henn. See Dryopteris.
ADONIS. Hardy annual and perennial herbs.
Aecidium solms-laubachii Boy. and Jacz. Rust on leaves of *A. aestivalis* in France.
Urocystis leimbachii Oertel. A smut forming galls at the base of the stems of *A. aestivalis* in Germany
AEGLE. Bael fruit. Tropical fruit tree.
Bacterium citri Hasse. See Citrus.
Cercospora undulata (Ch. Bern.) Sacc. Leaf spots, blackish above, yellow beneath, on *A. odorata* and *Citrus* sp. in Java.
AEGOPODIUM. GOUTWEED. Herbaceous perennials.
Ascochyta podagrariae Bres. On leaves of *A. podagraria* in Germany.
Mycosphaerella aegopodii A. Pot. Whitish or pale spots on leaves of *A. podagraria*, widespread in Europe.
Peronospora podagrariae Otth. On leaves of *A. podagraria* in Switzerland.
Phyllosticta podagrariae Oud. Irregular, indefinite dark-brown spots on leaves of *A. podagraria* in Holland.
Protomyces macrosporus Unger. See Coriandrum.
Puccinia aegopodii (Schum.) Mart. Dark-brown rust pustules on leaf blades and petioles of *A. podagraria* in Europe.
Puccinia leioderma Lindr. Brown powdery rust pustules on under side of leaves of *A. alpestre* and *A. tenerea* in Turkestan, Siberia, and Japan.
Septoria aegopodii (Pr.) Sacc. Causes spotting of leaves of *A. podagraria* in Russia.
Septoria aegopodina Sacc. Angular, brown, finally white, leaf spots on *A. podagraria* in Italy and Serbia.
AERIDES. See *Orchidaceae*.
AESCULUS. HORSECHESTNUT. Buckeye. Shade trees.
Ascochyta aesculi Kab. and Bub. Large, irregular, yellow to brown spots, which coalesce, destroying the leaves of *A. hippocastanum* in Bohemia.
Ascochyta grandimaculans Kab. and Bub. Large, dark-yellow, irregular spots with reddish-purple margins on leaves of *A. hippocastanum* in Bohemia.
Phleospora paricissima v. Hoehn. Numerous subcircular brown spots on leaves of *A. hippocastanum* in Austria and Germany.
Phyllosticta aesculana Oud. Leaf spots on *A. hippocastanum* in Holland.
Phyllosticta aesculina Sacc. Ochraceous leaf spots on *A. hippocastanum* in France.
Phyllosticta hippocastani Oud. Indefinite brown areas on *A. hippocastanum* in Holland.
Phyllosticta sociallis Bub. and Kab. Small, angular, purple-brown spots on leaves of *A. hippocastanum* in Bohemia.
Phytophthora syringae Kleb. See Syringa.
Septoria aesculi (Lib.) West. Leaf spots on *A. hippocastanum* in Belgium, France, Italy, Russia, and Austria. Of limited distribution in the United States.
Septoria aesculina Thuem. Leaf spots on *A. hippocastanum* in France and Austria. Said to be serious in California on *A. californica*.
Stereum purpureum Pers. See Prunus.
AETHIONEMA. STONE CRESS. Herbaceous perennials.
Aecidium aethionematis P. Magn. Rust pustules on leaves of *A. buxbaumi* in Asia Minor.
AEXTOXICON. South American trees.
Hendersonia aetoxici Speg. Circular, grayish spots with purple areas surrounding, on the upper surface of leaves of *A. punctatum* in Chile.
Phyllosticta aetoxici Speg. Whitish spots, with narrow dark-purple borders, on leaves of *A. punctatum* in Chile.
AFZELIA. INTSIA. Ag. Tropical timber trees.
Fomes lignosus Klotzsch. See Hevea.
Hyaloderma afzeliae V. Keissl. Small black globular fruiting bodies in groups on leaves of *Afzelia* sp. in Samoa and the Solomon Islands.
Phyllachora afzeliae Syd. Shining black convex areas on leaves of *A. bijuga* in the Philippines.
Trabutia stephaniae Banc. On leaves of *A. retusa* in the Straits Settlements.

AGAPANTHUS. ABUMON Ag. Herbaceous perennials with tuberous root stalks. The name African lily is sometimes applied to *A. umbellatus*.
Ascochyta hyacinthi Tassi. See Hyacinthus.
Mycosphaerella agapanthi (K. and Cke.) Lind. Large, irregular, dark leaf spots on *A. umbellatus* in south Africa.

AGATHIS. DAMMARA Ag. DAMMAR PINE. Karui pine. Coniferous trees.
Aecidium balansae Cor. On *A. alba* in Straits Settlements and New Caledonia.
Dielsiella pritzelii P. Henn. Circular, black tar spots on leaves of *A. palmerstoni* in Queensland.

AGAVE. Century plant. Sisal. Henequen. Ornamental and fiber plants.
Botryosphaeria agaves (P. Henn.) Butl. Dark-brown spots, becoming pale at the center, on leaves of *A. sisalana*, in India and Tanganyika.
Gloeosporium agaves Syd. Irregular, black, diseased areas which finally coalesce on leaves of *Agave* sp. in Brazil.
Hendersonia agaves Maubl. Dirty-white spots with brown margins on upper surface of leaves of *Agave* sp. in Algeria.
Leptosphaeria agaves Syd. and Butl. On leaves of *A. sisalana* in India.
Marsonia agaves Earle. Sunken yellow spots on leaves of *Agave* sp. in Colombia.
Phyllosticta agaves Maubl. Yellowish spots, with brown margins, on upper surfaces of leaves of *Agave* sp. in Algeria.
Septoria megaspora Speg. On leaves of *A. americana* in Argentina.
Tuberculeria agaves Pat. On leaves of *Agave* sp. in Costa Rica.
Tuberculina concentrica Mont. and Fr. Large brown spots on leaves of *Agave* sp. in France.

AGERATUM. Garden annuals.
Aecidium agerati P. Henn. Rust pustules on brown leaf spots on *A. conyzoides* in central Africa.
Albugo brasiliensis Speg. On leaves of *A. conyzoides* in Colombia and Brazil.
Puccinia rosea (Diet. and Holw.) Arth. Brown rust pustules on leaves of *A. conyzoides*, *A. corymbosum*, *A. strictum*, *Eupatorium deltoideum*, *E. glabratum*, *E. gonzalesii*, *E. polyodon*, *E. trinervium*, *E. tubiflorum*, and *Stevia rhombifolia* in Mexico, Porto Rico, and Guatemala.
Uredo agerati Mayor. Rust on leaves of *A. conyzoides* in Colombia.

AGLAONEMA. Variegated-leafed aroid.
Gloeosporium graffii Syd. Anthracnose on leaves of *A. dorsinervium* in the Philippines.

AGONIS. See Leptospermum.

AGRIMONIA. AGRIMONY. Perennial herbs.
Discosia artocreas (Tode) Fr. On leaves of *A. eupatoria* in Austria.
Phyllosticta agrimoniae Lasch. On leaves of *A. eupatoria* in Denmark.
Ramularia agrimoniae Sacc. White, moldlike growth on under sides of leaves of *A. eupatoria* in Siberia.

AGROPYRON. WHEAT GRASS.
Ascochyta graminum Lasch. Pale-brown spots on leaves of *Agropyron* sp. in Germany.
Hypochnus fuciformis (Berk.) McAlp. See Lolium.
Ophiobolus cariceti (B. and Br.) Sacc. See Triticum.
Uromyces agropyri Barcl. Yellow-brown to brown rust pustules on leaves of *Agropyron* sp. in India.
Uromyces fragilipes Tranzsch. Chestnut-brown rust pustules on leaves of *A. squarrosum* in Transcaspia (Russia).

AGROSTIS. BENT GRASS. REDTOP. Forage grasses.
Ascochyta graminicola Sacc. See Bromus.
Dilophia graminis (Fckl.) Sacc. See Triticum.
Endodothella helvetica (Fckl.) Theiss. and Syd. Black, slightly raised areas on leaves of *Agrostis* sp. in Switzerland and Germany.
Endodothella tosensis (P. Henn.) Theiss. and Syd. Black fruiting bodies on leaves of *A. perennans* and *A. tenuiflora* in Japan.
Hypochnus fuciformis (Berk.) McAlp. See Lolium.
Leptosphaeria sparsa (Fckl.) Sacc. See Poa.
Ophiobolus cariceti (B. and Br.) Sacc. See Triticum.
Phyllachora fuscescens Speg. Black, linear fruiting bodies on leaves of *Agrostis* sp. in Argentina.
Physoderma agrostidis Lagerh. Oblong spots on leaves of *A. alba* in Sweden.
Puccinia agrostidis Plowr. (*Aecidium aquilegiae* Pers.) Yellow to brown rust pustules on leaves of *Aquilegia alpina*, *A. atrata*, *A. atroviolacea*, *A. castellana*, *A. glandulosa*, *A. haenkeana*, *A. nigricans*, *A. pyrenaica*, *A. sternbergi*, *Agrostis alba*, *A. perennans*, *A. tenuiflora*, and *A. vulgaris* in Europe, India, and Madeira. Reported from New York.
Puccinia borealis Juel. Rust with its aecial stage on *Thalictrum alpinum*, and the uredo and telia stages on *A. borealis*, *Anthoxanthum odoratum*, *Calamagrostis stricta*, and *Hierochloë odorata* in Sweden, Norway, and Iceland.
Puccinia moyanoi Speg. Brown rust pustules on leaves of *A. moyanoi* in Patagonia.
Septoria triseti Speg. Small, linear ashen-colored spots on leaves of *A. magellanica* and *Trisetum phleoides* in Chile.
Tilletia decipiens (Pers.) Koern. A smut forming black spore masses in the ovaries and stunting the plants of *A. alba*, *A. stolonifera*, and *A. vulgaris* (*A. pumila*) in Denmark, Italy, Sweden, and Germany.
Tilletia separata Kunze. Forms black spore masses in ovaries of *A. spica-venti* and *A. vulgaris* in France, Switzerland, Great Britain, Russia, and Germany.
Uromyces poae Rabh. See Poa.

AILANTHUS. Ornamental trees, *A. altissima*, sometimes called "tree-of-heaven."
Ascochyta ailanthi Boud. and Fautr. Ashen-colored spots on leaves of *A. altissima* (*A. glandulosa*) in France.
Cercospora ailanthi Syd. Circular black spots, changing to brown, on both leaf surfaces of *A. altissima* in Germany.
Phyllosticta ailanthi Sacc. Irregular, pale-yellow spots with reddish margins, on leaves of *A. altissima* in Italy, Japan, and China.
Uncinula delavayi Pat. Powdery mildew on leaves of *Ailanthus* sp. in China.

AIRA. HAIRGRASS. Ornamental annual grasses.
Entyloma catenulatum Rostr. Oblong gray spots on leaves of *A. caespitosa* in Denmark.
Leptosphaeria insignis Karst. On leaves of *A. alpina* and *Alopecurus ovatus* in Spitzenbergen.
Leptosphaeria nigrans (Desm.) Ces. and De N. On leaf sheaths of *A. caespitosa*, *Alopecurus pratensis*, *Arena pratensis*, *Dactylis glomerata*, and *Milium effusum* in Finland, France, Italy, and Great Britain.
Mycosphaerella recutita (Fr.) Johans. Black fruiting bodies on leaves of *A. caespitosa*, *Bromus benekeni*, *B. ramosus*, *Dactylis glomerata*, and *Glyceria fluitans* in Sweden, Denmark, Great Britain, and Germany.
Puccinia borealis Juel. See Agrostis.

AIRA—Continued.
Tilletia airae Blytt. Black spore masses in ovaries of *A. caespitosa* in Sweden.
Tilletia airae-caespitosae Lindr. Black, powdery spore masses produced in discolored areas in leaves of *A. caespitosa* in Finland.
Tilletia flectens Lagh. Dark-brown fruiting areas in leaves of *A. flexuosa* in Sweden.
Uredo airae Lagh. Rust pustules on leaves of *A. caespitosa* and *A. flexuosa* in Denmark.
Uredo airae-flexuosae Liro. Brown rust pustules on leaves of *A. flexuosa* in Finland.
Ustilago grammica B. and Br. Black spore masses occurring in short parallel transverse areas on leaves of *A. caespitosa* and *Glyceria aquatica* in Great Britain.

AJUGA. Bugle. Herbaceous perennials.
Aecidium ajugae Syd. Yellow rust pustules in circular brown spots on leaves of *Ajuga* sp. in India.
Phyllosticta ajugae Sacc. and Speg. Dull-yellow spots, with brown margins, on leaves of *Ajuga* sp. and *A. reptans* in France and Italy.
Ramularia ajugae (Niess.) Sacc. and var. **ajugae-pyramidalis** Sacc. Subcircular brown spots on leaves of *A. genevensis*, *A. larmanni*, *A. multiflora*, *A. pyramidalis*, and *A. reptans* in France, Switzerland, Russia, Denmark, Italy, Yugoslavia, Bulgaria, Bohemia, Austria, and Germany.

AKEBIA. Twining woody plants.
Aecidium akebiae P. Henn. Yellow rust pustules in yellow or brown leaf spots on *A. lobata* and *A. quinata* in Japan.
Ascochyta akebiae Bres. Circular to angular brown spots, fading out to white with black borders, on leaves of *A. quinata* in Germany.
Triphragmium thwaitesii B. and Br. See Acanthopanax.

ALANGIUM. Tropical trees or shrubs.
Chaetosphaeria indica Niessl. On leaves of *A. decapetalum* in India.

ALBIZZIA. Leguminous ornamental woody plants.
Ascochyta julibrissin F. Tassi. On pods of *A. julibrissin* in Italy.
Diplodia cacaoicola P. Henn. See Theobroma.
Endodothella albizziae Syd. Black stromata on leaves of *A. marginata* in the Philippines
Fomes lamaoensis Murr. See Hevea.
Fomes pseudoferreus Wakef. See Hevea.
Helminthosporium albizziae Petch. Small spots on leaves of *A. lebbek* in Ceylon.
Microstroma albizziae Syd. On living leaves of *A. fastigiata* in the Union of South Africa.
Phragmocauma viventis (Cke.) Theiss. and Syd. Black concave areas on upper surfaces of leaflets of *Albizzia* sp. and *A. fastigiata* in the Union of South Africa.
Phyllosticta divergens Sacc. Subcircular pale-yellow spots, with darker margins, on leaves of *A. anthelminthica* and *A. lebbek* in Abyssinia and Porto Rico.
Ravenelia albizziae Diet. Brown rust pustules on leaves of *A. anthelminthica* in Abyssinia.
Ravenelia albizziae-amarae Bacc. Brown leaf rust on *A. amara* in Abyssinia.
Ravenelia japonica Diet. and Syd. Cinnamon-brown to dark-brown rust pustules on leaves and branches of *A. julibrissin* in Japan.
Ravenelia minima Cke. Brown rust pustules on leaves of *A. fastigiata* in Uganda and the Union of South Africa.
Ravenelia papillosa Speg. Rust on leaves of *A. julibrissin* and *Acacia platensis* in Argentina.
Ravenelia sessilis Berk. Yellow-brown to black rust pustules on leaves and pods of *A. lebbek* in Ceylon and India.
Sphaerophragmium acaciae (Cke.) P. Magn. Brown rust pustules on leaves of *A. lebbek* in China and India.
Sphaerophragmium luzonicum Yates. Rust on *A. procera* in the Philippines.
Uredo ngamboensis P. Henn. Rust on leaves of *A. lebbek* in east Africa and the Philippines.
Uromycladium tepperianum (Sacc.) McAlp. See Acacia.

ALBUCA. Bulbous plants.
Uromyces albucae Kalchbr. and Cke. Cinnamon-brown rust pustules on leaves of *A. altissima*, *A. aurea*, *A. juncifolia*, and *A. minor* in Angola and the Union of South Africa.
Ustilago albucae Syd. Dark-brown, powdery masses of smut spores replacing the ovaries and anthers of *Albuca* sp. in Central Africa.

ALCHEMILLA. Hardy herbaceous perennials.
Gymnoconia alchemillae Bacc. Rust on leaves of *A. pedata* in Abyssinia.
Laestadia alchemillae Rostr. On leaves of *A. vulgaris* in Greenland.
Ovularia alpina Mass. On leaves of *A. hoppeana* in Switzerland.
Ovularia haplospora (Speg.) Magn. Subcircular, often confluent, dull-brown spots, with brownish-purple margins, on leaves of *A. alpestris*, *A. fissa*, *A. montana*, *A. pratensis*, *A. pubescens*, *A. subcrenata*, and *A. vulgaris* in Russia, Finland, Sweden, Serbia, Bulgaria, Switzerland, Italy, Austria, Denmark, and Germany.
Ovularia schroeteri (Kuehn.) Sacc. Ashen leaf spots on *A. vulgaris* in France, Switzerland, Austria, and Germany.
Peronospora alchemillae Otth. Downy mildew on leaves of *A. vulgaris* in Europe and Siberia.
Phyllosticta alchemillae (Vgr.) Allesch. On leaves of *A. vulgaris* in Denmark.
Puccinia aliena Syd. Dark-brown powdery rust pustules on leaves of *A. pedata* in tropical Africa.
Uromyces alchemillae (Pers.) Lev. Yellow to brown powdery rust pustules on under sides of leaves of *A. acutangula*, *A. acutiloba*, *A. alpestris*, *A. fissa*, *A. montana*, *A. pastoralis*, *A. pratensis*, *A. pubescens*, *A. splendens*, and *A. vulgaris* in all of Europe, Greenland, and Asia Minor.
Uromyces melosporus (Therry.) Syd. Dark-brown rust pustules on leaves of *A. alpina*, *A. hoppeana*, *A. pedata*, *A. pentaphylla*, and *A. saxatalis* in Uganda, Switzerland, Austria, and Germany.
Venturia alchemillae (Grev.) B. and Br. Pale spots on leaves of *A. vulgaris* in Italy, Belgium, France, Scotland, Finland, and Germany.

ALCHORNEA. Dovewood. Tropical shrubs or trees.
Aecidium alchorneae Sacc. Leaf rust on *Alchornea* sp. and *A. rugosa* in the Philippines.
Glocosporium alchorneae Syd. Anthracnose on leaves of *A. javanica* and *A. rugosa* in the Philippines and Celebes.
Olivea capituliformis (P. Henn.) Arth. Rust on leaves of *A. iricurana* and *A. latifolia* in Porto Rico, Tortola, and Brazil.

ALETRIS. Star grass. Small hardy herbs.
Colletotrichum aletridis P. Henn. Anthracnose on leaves of *A. japonica* in Japan.
Glocosporium thuemenii Sacc. See Anthurium.

ALEURITES. Candlenut. Wood-oil tree. Oil-producing trees.
Cercospora aleuritidis Miy. Leaf spot of *A. cordata* in China.
Glocosporium aleuriticum Sacc. Anthracnose of *A. moluccana* in the Philippines.

ALLAMANDA. Tropical shrubs and climbers.

Septoria allamanda Wint. On leaves of *A. hendersoni* in Portugal.

ALLIUM. ONION. GARLIC. LEEK. CHIVE. SHALLOT. Bulbous herbaceous perennials, cultivated for the most part as food plants, but with some ornamental species.

Bacillus ceptivorus Delacr. Said to cause a soft rot of bulbs of *A. cepa* in France.

Bacillus croci Mizu. See Crocus.

Cercospora duddiae Welles. Yellow, circular to irregular spots, on leaves of *A. cepa* and *A. sativum* in the Philippines. The lesions are numerous and rapidly coalesce, killing leaves, with resulting losses to the crop often as high as 50 per cent.

Cercospora victorialis Thuem. Large, subcircular, greenish-black leaf spots on *A. victorialis* in Siberia.

Chlorospora vastatrix Speg. Produces a "very serious" decay of bulbs of *A. cepa* and *A. sativum* in Argentina.

Fusariella atro-virens (Berk.) On bulbs of *A. sativum* in Great Britain.

Fusarium cepae Hanz. Found in connection with root rot and bulb decay of *Allium* in Japan.

Heterosporium allii-cepae Ranoj. Produces gray, elongated spots, with greenish margins over the surface of scapes of *A. cepa* in Yugoslavia.

Hypochnus cucumeris Frank. See Cucumis.

Melampsora allii-fragilis Kleb. See Salix.

Melampsora allii-populina Kleb. See Populus.

Melampsora salicis-albae Kleb. See Salix.

Mycosphaerella allicina (Auersw.) Lind. On leaves of *A. asperum* in Yugoslavia.

Mycosphaerella schoenoprasi (Rabenh.) Schroet. On leaves of *A. fistulosum*, *A. moschatum*, *A. porrum*, and *A. schoenoprasum* in China, Japan, and throughout Europe.

Mystrosporium alliorium Berk. Forms dark patches on bulbs of *A. sativum* in Great Britain.

Physoderma allii Krieger. On leaves of *A. schoenoprasum* and *Allium* sp. in Germany.

Phytophthora allii K. Saw. This fungus forms cottony, white, mycelial masses on leaves and flower stalks of *A. fistulosum* in Japan. A soft rot ensues.

Puccinia allii-japonici Diet.
Dark-brown, powdery, rust pustules on leaves of *A. japonicum* in Japan.

Puccinia permixta Syd. Rust on leaves of *A. decipiens*, *A. moschatum*, *A. rotundum*, and *A. sphaerocephalum* in Russia.

Puccinia porri (Sow.) Wint. Yellow to dark-brown rust pustules on leaves of *Allium* spp. (over 40 species are reported as hosts) in New Zealand, Formosa, Japan, Syria, and Europe. Sparingly introduced into the United States.

Puccinia winteriana P. Magn. See Phalaris.

Sclerotinia bulborum (Wak.) Rehm. On *A. sativum* and other species in Great Britain. Probably not distinct from the following species.

Sclerotium cepivorum Berk. This fungus causes a serious rot of onion bulbs. Small black fruiting bodies (sclerotia) appear on the surface of diseased bulbs. The disease attacks *A. ascalonicum*, *A. cepa*, *A. porrum*, and *A. sativum* in New Zealand, Argentina, Great Britain, Spain, France, Italy Holland, and Germany. Confused in American literature with *Botrytis allii* Munn. Definitely reported from Oregon and Virginia.

Septoria alliacea Cke. On leaves of *Allium* sp. in India.

Septoria alliicola Baum. On leaves of *A. flavum* and *A. sphaerocephalum* in Spain.

Septoria allii-striatelli Speg. Pale, indefinite spots on leaves of *A. striatellum* in Argentina.

Septoria ranojevicii Bub. On leaves of *A. moschatum* in Yugoslavia.

Stemphylium allii Oud. On leaves of *Allium* sp. in Holland.

Tylenchus dipsaci Kuehn. See Narcissus.

Urocystis colchici (Schlecht) Rab. See Colchicum.

Urocystis magica Pass. Black masses of smut spores formed in leaves of *A. magicum* in Italy.

Uromyces ambiguus (DC.) Lev. Yellow to black powdery rust pustules on leaves and stems of *A. rotundum*, *A. schoenoprasum*, *A. scorodoprasum*, and *A. sphaerocephalum* in Turkey, Yugoslavia, Russia, Finland, Sweden, Denmark, Holland, France, Austria, and Germany.

Uromyces durus Diet. Rust-forming hard, black, crustlike masses of telial spores on leaves of *A. nipponicum* in Japan.

Uromyces primaverilis Speg. Linear brown rust pustules on leaves of *A. striatellum* in Argentina.

Uromyces reticulatus (Thuem.) Bub. Yellow to dark-brown rust pustules on *A. victorialis* in Japan, Siberia, Spain, Portugal, France, Switzerland, Austria, and Hungary.

Ustilago allii McAlp. Black spore masses in pustules on bulbs of *A. cepa* in Australia.

Ustilago ceparum Glow. Black spore masses in bulbs of *A. cepa* in Germany.

ALNUS. ALDER. Ornamental woody plants and timber trees.

Exoascus alni-glutinosae Tub. On *A. glutinosa* in Italy, Denmark, and Sweden.

Exoascus epiphyllus Sad. Causes a witches'-broom and forms a gray fruiting layer on leaves, which are distorted, of *A. glutinosa* and *A. incana* in Russia, Switzerland, Portugal, Sweden, Bulgaria, Denmark, Italy, and Austria.

Gloeosporium alneum West. Anthracnose on leaves of *A. glutinosa* and *A. incana* in Albania, Yugoslavia, and Austria.

Gnomonia setacea (Pers.) Ces. and De N. On leaves of *A. glutinosa* in Italy.

Gnomoniella albomaculans Neger. Chalky-white areas on leaves of *A. incana* in Norway.

Gnomoniella tubiformis (Tode.) Sacc. On leaves of *A. glutinosa* in Italy, Russia, and Germany.

Hyphoderma roseum (Pers.) Fr. See Populus.

Leptothyrium alneum (Lév.) Sacc. On leaves of *A. glutinosa*, *A. incana*, and *A. viridis* in Europe.

Melampsoridium alni (Thuem.) Kleb. Yellow to brown rust pustules on lower leaf surfaces of *A. acuminata*, *A. firma*, *A. glauca*, *A. incana*, *A. jorullensis*, and *A. viridis* in Ecuador, Guatemala, Great Britain, Japan, and Siberia. Also reported from California.

Mycosphaerella alnobetulae Jaap. On leaves of *A. viridis* (*A. alnobetula*) in Switzerland.

Passalora alnobetulae Jaap. On leaves of *A. viridis* in Austria.

Passalora bacilligera (Mont.) Fr. Subcircular spots, yellow-brown above, gray-green below, on leaves of *A. viridis* and *A. glutinosa* in Austria.

Phyllosticta alnea Oud. Pale rust-colored spots on leaves of *A. glutinosa* in Holland.

Phyllosticta alnicola C. Mass. Small, crowded, angular, often confluent, rust-brown spots on leaves of *A. glutinosa* in Russia and Italy.

Phyllosticta alnigena Thuem. Large, yellow-brown, circular, concentrically zoned spots on leaves of *A. cordifolia* and *A. glutinosa* in Italy and Portugal.

Phyllosticta alni-glutinosa Syd. Irregular, yellow-brown spots, 0.5 to 1 centimeter in diameter, on leaves of *A. glutinosa* in Italy, Russia, and Germany.

Phyllosticta alniperda Oud. Circular to angular brown spots, with black margins, on leaves of *A. glutinosa* in Holland.

Phytophthora syringae Kleb. See Syringa.

ALNUS—Continued.

Ramularia alnicola Cke. Circular gray leaf spots on *A. glutinosa* in Russia and Great Britain.

Rhytisma nervale (Alb. and Schw.) Rehm. Linear rough, black fruiting areas on leaves of *Alnus* sp., *Betula* sp., and *B. alba* in Portugal.

Sclerotinia alni Maul. Forms sclerotia in place of seed in catkins of *A. glutinosa* and *A. incana* in Denmark, Germany, and Russia.

Septoria alni Sacc. Subcuticular ochraceous spots on upper leaf surfaces of *A. glutinosa* in France and Italy.

Septoria alnicola Cke. Brown circular leaf spots on *A. glutinosa* in Great Britain and Italy.

Septoria alnigena Sacc. On leaves of *A. cordifolia* and *A. glutinosa* in Italy.

Septoria carisolensis Kab. and Bub. Circular to angular, often confluent, purplish-brown spots with reddish-brown margins on leaves of *A. viridis* in Italy.

Taphrina japonica Ets. Produces a witches'-broom effect on *A. japonica* in Japan. The diseased branches are triangular in cross section. Leaves on the broomed branches appear early but are soon checked in their growth and remain small and pale in color until they wither and fall. The mycelium of the fungus overwinters in the buds.

Taphrina sadebeckii Johans. Circular yellowish or white leaf spots on *A. glutinosa*, *A. incana*, and *A. sinuata* in Europe.

Taphrina viridis Sadeb. Forms leaf spots on *A. viridis* in Switzerland.

Uncinula miyabei Salm., Sacc. and Syd. White powdery mildew on leaves of *A. incana*, *A. japonica*, *A. maritima*, and *A. pendula* in Japan.

ALOCASIA. Tropical aroids used as decorative foliage plants.

Cacoma anthurii Har. var. **alocasiae** Racib. Rust on leaves of *A. metallica* in Java.

Gloeosporium thumenii (Von Th.) Sacc. See Anthurium.

Mycosphaerella alocasiae Syd. Leaf spot on *A. indica* and *A. macrorhiza* in Java and the Philippines.

Phyllosticta portiana Sacc. On leaves of *A. portei* in the Philippines.

Uredo alocasiae P. Henn. Yellow rust pustules on leaves of *Alocasia* sp. in New Guinea.

ALOE. A number of perennial succulents.

Dothidea aloicola P. Henn. On leaves of *Aloe* sp. in Abyssinia.

Gloeosporium affine Sacc. See Hoya.

Macrophoma aloes Scalia. On leaves of *A. latifolia* in Italy.

Montagnella maxima Mass. Raised, 6 to 8 mm., circular black areas, 4 to 5 centimeters broad, on leaves of *A. ferox* and *A. platylepis* in the Union of South Africa.

Montagnella uberata Sacc. Gall-like fruiting areas on leaves of *A. abyssinica* and *A. flavoviridens* in Abyssinia and Erythrea.

Phyllosticta aloes Kalchbr. On leaves of *A. latifolia*, *A. purpurascens*, and *A. voltensi* in Spain and the Union of South Africa.

Septoria bellynckii West. **Leaf spot of *A. variegata* in Belgium.**

Uromyces aloes (Cke.) P. Magn. Brown rust pustules on large sunken spots on leaves of *A. abyssinica*, *A. arborescens*, *A. baumi*, *A. eru*, *A. maculata*, *A. saponaria*, *A. schimperi*, *A. spicata*, *A. transvaalensis*, and *A. vera* in India and Africa.

ALPINIA. Tropical decorative plants of the ginger family.

Catacauma alpiniae Sacc. and Berl., Theiss. and Syd. Black, slightly raised stromata on long elliptical, yellow spots on leaves of *A. coerula* in Australia.

Catacauma renalmiae (Rehm.) Thiess. and Syd. Tar spot on leaves of *A. antillarum* and *Renealmia* sp. in Porto Rico and Brazil.

Cercospora alpiniae Syd. Leaf spot on *Alpinia* sp. in the Philippines.

Leptosphaeria alpiniae Manbl. Leaf spot on *A. nutans* in Brazil.

ALSINE. Herbaceous annuals, mostly weeds, but a few species cultivated in rock gardens. See, also, Stellaria and Arenaria.

Septoria alsines Foerst. On leaves and stems of *A. verna* in Denmark.

Septoria vandasii Bub. Blackened areas on branches, leaves, bracts, and calyces of *A. glomerata* in Hungary.

Uromyces alsines Tranzsch. Rust on leaves of *A. setacea* in Russia.

ALSOPHILA. TREE FERN.

Monochirina filicina (B. and Br.) Theiss. and Syd. Large black circular to irregular crustlike fruiting areas on leaves of *Alsophila* sp. in Ceylon and Queensland.

Pachypatella alsophilae (Rac.) Theiss. and Syd. See Cyathea.

Phyllosticta alsophilae Syd. Subcircular brown spots, becoming pale at the center, on leaves of *Alsophila* sp. in Brazil.

Polystomella pulchella (Speg.) Theiss. On leaves of *Alsophila* and *Blechnum* in Brazil and Australia.

ALSTONIA. PALA Ag. Ornamental trees.

Ascochyta alstoniae P. Henn. Circular to oblong pale spots, with brown margins, on leaves of *A. villosa* in Brazil.

ALSTROEMERIA. Tuberous-rooted herbs, sometimes called "Peruvian lily" and "Chilean lily."

Puccinia alstroemeriae Syd. Produces light-brown to dark-brown rust pustules on dead irregular areas on both surfaces of leaves of *A. revoluta* in Chile.

Scolecotrichum alstroemeriae Allesch. On the lower surfaces of leaves of *Alstroemeria* sp. in Germany.

Uromyces alstroemeriae (Dietz.) P. Henn. Yellow sunken, circular to elliptic spots on both leaf surfaces, in which appear yellow-brown to deep-brown rust pustules. The hosts are *A. curantiaca*, *A. isabellana*, *A. revoluta*, and *A. salsilla* in Brazil and Chile.

ALTERNANTHERA. Herbaceous bedding plants.

Laestadia cephalariae Allesch. Sacc. and var. **alternantherae** Sacc. Small, pale, sunken spots on leaves of *A. versicolor* and *Cephalaria alpina* in Germany.

ALTHAEA. MARSHMALLOW. HOLLYHOCK. Annual, biennial, or perennial herbs.

Cercospora nebulosa Sacc. On leaves and stems of *A. rosea* in Italy.

Erysiphe taurica Lév. Powdery mildew on leaves of *Acanthophyllum glandulosum*, *Alhagi camelorum*, *A. maurorum*, *Althaea ficifolia*, *A. hirsuta*, *Anethum*, *Antirrhinum orientale*, *Astragalus* sp., *Capparis spinosa*, *Carduus pycnocephalus*, *Centaurea cerrycephala*, *C. iberica*, *C. orientalis*, *C. virgata*, *Cerinthe major*, *Chamaerops humilis*, *Cirsium*, *Clematis orientalis*, *Cnicus arvensis*, *C. candicissimus*, *C. lanuginosus*, *Cosmos diversifolius*, *Crepis rubra*, *Cynara cardunculus*, *Daucus maximus*, *Eryngium campestre*, *E. rodendron*, *Euphorbia lanata*, *Eryngium tricuspidatum*, *Ferula communis*, *F. vulgaris*, *Hedysarum alpinum*, *Helianthemum oelandicum*, *Inula britannica*, *Linum austriacum*, *Onopordon acanthium*, *O. cynarocephalum*, *Phlomis herba-venti*, *P. tuberosa*, *Picris hieracioides*, *Prunella vulgaris*, *Scrophularia*, *Scutellaria rubicunda*, *Tordylium maximum*, *Teucrium chamaedrys*, *Verbascum* sp., *Veronica* sp., *V. spicata*, *Vicia tenuifolia*, and *Zygophyllum fabago* in Europe, Africa, Northern Asia, Persia, Turkestan, and India.

Phyllosticta althaeicola Passer. Definite subcircular to irregular, often confluent, whitish spots on leaves of *A. officinalis* in France.

ALTHAEA—Continued

Phyllosticta althaeina Sacc. Irregular brown spots on leaves of *A. rosea* in France and Italy. Reported from Ohio.

Phyllosticta destructiva Desm. Subcircular pale-yellow leaf spots, with darker margins, on *A. rosea*, *Euonymus europaeus*, *Evonymus* sp., *Lycium barbarum*, *Malva neglecta*, *M. nipponica*, *M. sylvestris*, *Malva* sp., and *Mesembrianthemum* sp. in Great Britain, France, Denmark, Belgium, Italy, Russia, Austria, and Germany. The diseased areas fall out, causing a "shot-hole" effect.

Phyllosticta pucciniospila Mass. Small whitish spots on leaves of *A. rosea* in Italy.

Puccinia heterogena Lagn. See Malva.

Septoria althaeae Thuem. Pale brown spots on leaves of *A. rosea* in Bohemia.

Septoria heterochroa Desm. See Malva.

Septoria parasitica. Fautr. White spots on upper surfaces of leaves of *A. rosea* and *Althaea* sp. in France.

ALYSSUM. SWEET ALYSSUM. Lowherbs, cultivated in gardens.

Peronospora alyssi calycini Gäum. Downy mildew on leaves of *A. calycinum* in Switzerland and Germany.

Peronospora alyssi incani Gäum. As above in Bohemia.

Puccinia alyssi Lindr. Dark-brown rust pustules on leaves and stems of *A. kalinifolium* and *A. spinosum* in Italy and Spain.

Septoria alyssi Bres. Small, subcircular to oblong pale spots on leaves of *A. saxatile* in Germany.

AMARANTHUS. AMARANTH. Coarse annuals; some species grown for colored foliage and showy flower clusters.

Ascochyta amaranthi Allesch. Subcircular to irregular pale or white spots with brown margins on leaves of *Amaranthus* sp. in Germany.

Coniothyrium amaranti (Fl. Tassi.) Sacc. and D. Sacc. Circular spots on leaves of *A. caudatus* in Italy.

Peronospora amaranthi Gäum. Downy mildew on leaves of *A. blitt* in Switzerland and Holland.

Phyllosticta moleriana Thuem. Large dull-yellow leaf spots, with dark-red margins, on *A. melancholicus* in Portugal.

Phyllostictiella amaranti Fl. Tassi. On leaves of *A. caudatus* in Italy.

Rhizoctonia napi West. See Brassica.

AMARYLLIS. Bulbous plants.

Aecidium amaryllidis Syd. and Butl. Yellow rust pustules appear on long sunken spots on the lower surfaces of leaves, more rarely on the upper, of *Amaryllis* sp. cultivated forms in India.

Phyllosticta amaryllidis Bres. Small black spots which become elongated or confluent are produced on the leaves of *Amaryllis* sp. in Brazil.

AMBROSINIA. Dwarf perennial bulbous herbs.

Entyloma dietelianum Bub. Black spore masses in red-brown areas on leaves of *A. bassii* in Sardinia.

AMELANCHIER. SHAD BLOW. JUNE BERRY. SHADBUSH. SERVICE BERRY. Trees and shrubs grown for ornament and fruit.

Coleopuccinia sinensis Pat. See Cotoneaster.

Gymnosporangium amelanchieris (DC.) Ed. Fisch. See Juniperus.

Ochrospora ariae (Fckl.) Syd. See Sorbus.

Phyllosticta mespili Sacc. var. **amelanchieri** Jacz. On leaves of *A. rotundifolia* (*A. rulgaris*) in Russia.

AMMOPHILA. BEACH GRASS. MARRAM GRASS. Sand binding grasses.

Ascochyta perforans Rob. Sacc. On leaves of *A. arenaria* in Belgium.

Heterosporium graminis McAlp. On leaves and culms of *A. arenaria* in Australia.

Leptosphaeria littoralis Sacc. On leaves and stems of *A. arenaria* and *Calamagrostis* sp. in Belgium and Germany.

Mycosphaerella lineolata (Desm.) Schroet. See Calamagrostis.

Septoria ammophila Syd. Long, narrow spots, limited by the veins, on leaves of *A. arenaria* in Germany.

Thecaphora ammophilae Oud. Black powdery spore masses on leaves of *A. arenaria* in Holland.

Uredo ammophilae Syd. Golden-yellow rust pustules over entire leaf surfaces of *A. arenaria* in Germany.

Uredo ammophilina Kleb. Brown rust pustules on leaves of *A. arenaria* in Europe.

AMORPHA. FALSE INDIGO. LEAD PLANT. Ornamental shrubby plants, grown for flowers and foliage.

Systremma amorphae (Rabh.) Theiss. and Syd. On *A. fruticosa* in Germany.

AMORPHOPHALLUS. DEVIL'S-TONGUE. Sometimes known as "snake palm." Giant aroids.

Cercospora amorphophalli P. Henn. Dull-brown circular spots on leaves of *A. campanulatus* and *Amorphophallus* sp. in Java and the Philippines.

Cercospora chevalieri Sacc. Circular to angular, scattered or confluent, white spots on leaves of *Amorphophallus* sp. in Uganda.

Hypochnus cucumeris Frank. See Cucumis.

Puccinia paululа Syd. Rust pustules on leaves of *A. campanulatus* in the Philippines.

Rhizoctonia de-truens Tass. See Brassica.

AMPELOPSIS. VIRGINIA CREEPER. Ornamental woody vines.

Cercospora vitis-heterophyllae P. Henn. On leaves of *A. heterophylla* in Japan.

Phakopsora ampelopsidis Diet. and Syd. Golden-yellow to brown rust pustules on under surfaces of leaves of *A. heterophylla*, *A. japonica*, *A. lecoides*, *Vitis flexuosa*, and *V. inconstans* in Japan and China.

Phyllosticta allescheri Syd. Circular, fuscous-brown spots on leaves of *A. quinquefolia* and *A. tricuspidata* (*A. veitchii*) in Germany.

Phyllosticta quinquefoliae Allesch. Irregular gray spots, becoming confluent on both surfaces of leaves of *A. quinquefolia* in Germany.

Phyllosticta speschnewiana Sacc. and Syd. Small circular to irregular spots on both surfaces of leaves of *A. hederacea* in Transcaucasia.

AMSONIA. Perennial herbs.

Phyllosticta amsoniae Fl. Tass. Small subcircular to irregular spots on leaves of *A. salicifolia* in Italy.

AMYGDALUS. See Prunus.

ANACARDIUM. CASHEW. Tropical fruit and shade trees.

Atichia millardeti Rabh. See Cinnamomum.

Dendrodochium paraense Vinc. On leaves of *A. occidentale* in Brazil.

Fusarium udum Butl. See Cajanus.

Parodiella melioloides B. & C. Wint. On leaves of *Anacardium* sp. in Brazil.

ANAGALLIS. Primulaceæ.

Peronospora anagallidis Sacc. Downy mildew on lower sides of leaves of *A. arvensis* and *A. coerulea* in Germany.

Peronospora caadida Fuck. White effused fungus produces downy mildew on lower surfaces of leaves of *A. arvensis* and *A. phoenicea* in Tunis, Great Britain, France, Switzerland, Germany, Belgium, Italy, and Germany.

ANANAS. Bromeliaceæ.

Asterinella stuhlmanni P. Henn. Thyriac. Brown spots on leaves spreading rapidly to cover whole area with black superficial, matting colies. On *A. sativus* in Tanganyika, Philippines and Java.

Bacterial rot. A rot of pineapple *A. sativus* slips and suckers, thought to be due to bacteria, has been recorded in Hawaiian Islands, Philippines, and Java.

Diplodia cacaoicola P. Henn. See Theobroma.

New disease. A disease of *A. sativus* in the Philippines and Queensland, the cause unknown, base, is characterized by an appearance of the leaves, giving a rough serrulated appearance. Many [illegible] in Hawaii.

Thielaviopsis paradoxa De Seyn. See Theobroma.

ANAPHALIS Compositæ.

Mycena anaphalidis Pat. Hardy, on stocks of herbaceous plants.

Uredo anaphalidis Diet. Leaf rust on *A. margaritacea* and *A. yedoensis* in Japan.

ANARRHINUM. Scrophulariaceæ.

Septoria anarrhini Sacc. Small circular purple-margined spots on leaves of *A. bellidifolium* in Portugal.

ANCHUSA. Boraginaceæ.

Ramularia anchusae Massal. Irregular brown spots on leaves of *A. hirsuta*, *A. italica*, *A. officinalis* and *Echium vulgare* in Italy, Belgium, Italy, Switzerland, Bosnia, and Germany.

Ramularia anchusae-officinalis Bres. Irregular dark-brown spots, with indefinite margins on leaves of *A. officinalis* in Sweden.

ANDIRA. YOUACAPOUA e.g. Leguminosæ. Tropical shade trees.

Cercospora stevensii Ellis. Small leaf spots, reddish-brown above, black beneath, on leaves of *A. inermis* in Jamaica.

Phyllosticta andirae Speschn. Conspicuous, irregular, dark-colored spots on both surfaces of leaves of *A. inermis* in Porto Rico.

Polystigma pusillum Syd. Small circular to irregular yellowish spots on leaves of *A. inermis* in Jamaica.

Ravenelia puyanensis Diet. & Holw. Pale brown leaf pustules on leaves of *A. glabra* in Brazil.

ANDROMEDA. See Rhododendron.

ANDROPOGON. Gramineæ.

Balansia andropogonis Speg. Leaves and stems covered by white felt-like mycelium, conidiophores and perithecia in Brazil.

Balansia sessilis P. Henn. Forming black sessile pseudodisc or pulvinate stromata on culms of *Andropogon* sp. in Africa.

Cercoseptoria andropogonis Ell. & Kell. Brown spots common on spikelets of *A. annulatus* in Ceylon.

Clarireila coturnipilifera Pat. On culms of *A. annulatus*, *A. bicornis*, *A. contortus*, *A. hirtus*, *A. pertusus*, *A. pumilus*, *A. sorghum*, *A. squarrosus*, *A. virgatus*, and *Sorghum halepense* in Africa.

Clavicepspaspalia Speg. Ergot on *Andropogon* sp. in Chile.

Endocelidia andropogonis P. Henn. Tropic and Syd. Black elliptical stromata on both leaf surfaces of *A. annulatus* in Africa.

Entylomella dissoa Syd. Black [illegible] on both surfaces of leaves of *A. annulatus* in Africa.

Entyloma sorosum Syd. Elongate black pustules on both leaf surfaces of *A. pertusus* in India.

Epicoccum pulvinatum Pat. Conspicuous pulvinate sporodochia on leaves of *A. annulatus* in Tonkin and *Andropogon* sp. in Africa.

Leptosporella herpotrichoides De Not. See Trichosphaeria.

Phaeodactylium falax Speg. Dark brown leaf spots on *A. annulatus* in Chile.

Phyllachora andropogonicola Speg. Small black pustules on leaves of *A. virgatus* in Argentina.

Phyllachora andropogonis Rehm and Pat. Black spots on leaves of *A. annulatus*, *Andropogon* sp. in Africa, *A. bicornis* in Mexico, Central and the Philippines.

Phyllachora assimilis Pass. and Speg. Minute black stromata on both leaf surfaces of *A. annulatus* in Argentina.

Physosporella festucae Lib. Spec. On leaves of *Andropogon* sp., *Arundo* sp., *Festuca* sp., *Holcus* sp., *Phragmites* sp., *Poa* sp., *Triticum* sp., and *Zea* sp. in Europe, Italy, and Germany.

Puccinia andropogonicola Hazl. and Pat. Leaves covered with black rust pustules on both leaf surfaces of *A. annulatus* in Africa.

Puccinia andropogonis-arundinacei Diet. Rust on leaves of *A. virgatus* in Japan.

Puccinia andropogonis-serrati Diet. Yellow rust pustules on culms of *A. nutans* in Japan.

Puccinia arundinis Syd. On leaves and culms of *A. annulatus*, *A. bicornis*, *A. contortus*, *A. hirtus*, *A. pertusus*, *A. pumilus*, *A. sorghum*, *A. squarrosus*, *A. virgatus*, and *Sorghum halepense* in Africa, Argentina, Bolivia, Brazil, Chile, Paraguay, Peru, Uruguay, Philippines, Bermuda, Mexico, Central America, Hawaiian Islands, Philippines, Australia, Belgium, Russia, Portugal, France, Switzerland, Italy, Austria, Hungary, and Germany.

Puccinia chrysopogi Diet. Yellow rust pustules in scattered yellow spots on leaves of *Jarmania* [illegible] in Japan.

Puccinia citrata Syd. Brown rust pustules on *A. annulatus* in Africa.

Puccinia cuneata Pat. and Har. Dark rust pustules on leaves of *A. annulatus* and *A. pertusus* in Java.

Puccinia erythraeensis Pazschke. Brown rust pustules on leaves and culms of *A. annulatus* in Africa.

Puccinia hookeri Syd. Brown rust pustules on leaves of *A. annulatus* in Africa.

Puccinia leptochaeae Diet. Brown rust pustules on leaves of *Andropogon* sp. in Japan and Java.

Puccinia nakanishikii Diet. Brown rust pustules on leaves of *A. nutans* in Japan.

Puccinia pustulata Syd. and Butler. Leaves covered with rust pustules on both leaf surfaces of *A. annulatus* in Africa.

Puccinia [illegible] Pat. Rust pustules on leaves of *A. annulatus* in Africa.

Puccinia [illegible] Syd. Brown rust pustules on leaves of *A. annulatus* in Africa.

Puccinia [illegible] Syd. Brown rust pustules on leaves of *A. annulatus* in Africa.

Puccinia [illegible] Syd. Black rust pustules on yellow or brown indefinite spots on leaves of *A. annulatus* in Africa.

ANDROPOGON—Continued.

Puccinia venustula Arth. Brown leaf rust on *A. brevifolius* in Porto Rico and Costa Rica.

Puccinia versicolor Diet. and Holw. Brown to black rust pustules on leaves of *A. contortus* and *A. melanocarpus* in Argentina, Mexico, and India.

Septoria gryllí Sacc. On leaves of *A. gryllus* in Italy.

Sorosporium andropogonis-aciculati Petch. Smut forming black spore masses in inflorescence of *A. aciculatus* in Ceylon and the Philippines.

Sorosporium dembianense Bacc. Smut on *A. rufus*, *A. papillipes*, and *A. arrhenobasis* in Abyssinia.

Sorosporium geminellum Syd. and Butl. Elongate dark-brown smut sori replacing ovaries of *Andropogon* sp. in India.

Sorosporium icosiense Maire. Smut on *A. hirtus* in French north Africa.

Sorosporium maranguensis P. Henn. Black powdery spore masses in inflorescences of *A. lepidus* in tropical Africa.

Sorosporium tembuti P. Henn. and Evans. Black spore masses in ovaries of *A. cymbosum* in the Union of South Africa.

Sorosporium wildemanianum P. Henn. Smut sori, with ashen coverings, formed in ovaries and stamens of *Andropogon* sp. in the Congo.

Thecaphora berkeleyana Fisch. Spherical black smut sori in spikelets of *A. perforatus* in Ceylon.

Tilletia calospora Pass. Smut on *A. agrestis* in Italy.

Tolyposporium philippinense Syd. Black powdery smut sori replacing ovaries of *A. contortus* in the Philippines.

Uredo andropogonis-hirti R. Maire. Brown rust pustules on small sunken brown spots on leaves of *A. hirtus* and *A. pubescens* in France, Spain, and Greece.

Uredo andropogonis-lepidi P. Henn. Elongate yellow rust pustules on leaves of *A. lepidus* in tropical Africa.

Uromyces andropogonis-annulati Syd. and Butl. Brown rust pustules on leaves of *A. annulatus* in India.

Uromyces clignyi Pat. and Har. Brown rust pustules on leaves of *A. hirtiflorus*, *A. prozimus*, and *Andropogon* sp. in Niger Territory, Abyssinia, and Guatemala.

Ustilago amadelpha Syd. and Butl. Black, powdery, smut sori in panicles of *Andropogon* sp. in India.

Ustilago andropogonis-aciculati Petch. Smut on *A. aciculatus* in the Philippines and Ceylon.

Ustilago andropogonis-annulati Bref. Powdery, dark brown, spore masses in ovaries of *A. annulatus* in India.

Ustilago andropogonis-finitimi Maubl. Black spore masses in inflorescences of *A. finitimus* in east Africa.

Ustilago andropogonis-hirtifolii P. Henn. Smut sori in the spikelets, protected at first by long cylindrical, cinnamon-colored membranes which rupture, exposing the black spore masses. On *A. hirtifolius* in Mexico.

Ustilago andropogonis-tuberculati Bref. Compact, hard, black sori in ovaries of *A. tuberculatus* in India.

Ustilago bicornis P. Henn. Sori black, in panicles of *A. bicornis* in Brazil.

Ustilago congensis Syd. Powdery, black smut sori, 1 to 2 centimeters long, in ovaries of *Andropogon* sp. in the Congo.

Ustilago culmiperda Schroet. Smut sori in culms of *A. bicornis* in Brazil.

Ustilago dinteri Syd. Sori developing in inflorescences, 1 to 5 centimeters long, inclosed by gray or brown membranes, which rupture, exposing dark fuscous or black spore masses, on *A. papillosus* in southwest Africa.

Ustilago duthiei Ricker. Smut sori, olive-brown, deforming the spikelets of *A. bladhius* in India.

Ustilago effusa Syd. Black, smut sori in sheaths, culms, and unexpanded leaves of *A. muricatus* in India.

Ustilago filiformis P. Henn. Long smut sori (up to 4 centimeters) destroying ovaries of *A. contortus* in east Africa.

Ustilago furcata Pat. and Har. Powdery, dark chestnut-colored sori, protected by white membranes, in ovaries of *Andropogon* sp. in west Africa.

Ustilago globulifera Sacc. and Trott. Hard, black, smut sori in inflorescences of *Andropogon* sp. in the Congo.

Ustilago guaranitica Speg. Smut on *A. condensatus* in Brazil and Argentina.

Ustilago ischaemonoides P. Henn. Black smut sori, covered at first with ashen membranes, destroying the inflorescences of *Andropogon* sp. in the Congo.

Ustilago lanigeri P. Magn. Black smut sori destroying inflorescences of *A. lanigerus* in Persia.

Ustilago leucostachys P. Henn. Sori in panicles of *A. leucostachys* in Brazil, yellowish at first, then black, due to the rupturing of the protecting membranes.

Ustilago nyassai Syd. Dark-brown smut sori in inflorescences of *Andropogon* sp. in Nyassa.

Ustilago occulta P. Henn. Black smut masses in culms of *Andropogon* sp. in Brazil.

Ustilago stuhlmanni P. Henn. Powdery, black smut masses on *Andropogon* sp. in central Africa.

Ustilago superflua Syd. Smut sori destroying ovaries of *A. foveolatus* in India.

Ustilago tenuis Syd. Long, dark brown sori in inflorescences of *A. pertusus* in India.

Ustilago tonkinensis P. Henn. Sori in red-brown spots on both surfaces of leaves of *Andropogon* sp. in Tonkin.

Ustilago tumefaciens P. Henn. Smut sori gall-like, causing abortion of inflorescences of *A. rufus* in tropical Africa.

Ustilago vanderystí P. Henn. Black, powdery sori destroying spikelets of *Andropogon* sp. in the Congo.

Ustilago warneckeana P. Henn. Dark-brown smut sori, deforming and destroying inflorescences of *A. contortus* in Camerun and India.

ANDROSACE. ROCK JASMINE. Rock plants.

Peronospora agrorum Gäum. Downy mildew on leaves of *A. septentrionalis* in Sweden.

Puccinia vulcaridana Ed. Fisch. Dark-brown rust pustules on leaves and stems of *A. chamaejasma* in Switzerland.

Puccinia dubyi Mueil. Rust on leaves of *A. alpina*, *A. glacialis*, and *A. laggeri* in Switzerland.

Septoria androsaces Pat. Sunken black spots on leaves of *A. rotundifolia* in China.

Ustilago androsaces Karst. Powdery, dark-brown smut sori in ovaries of *Androsace* sp. in Siberia.

ANEMONE (including *Pulsatilla*). Hardy perennials, sometimes called "windflower."

Aphelenchus olesistus Ritz. Bos. See Begonia.

Ascochyta anemones Kab. and Bub. Circular to irregular, yellow to dark-brown leaf spots on *A. nemorosa* in Bohemia.

Coleosporium pulsatillae Lev. Golden rust pustules in brown sunken spots on leaves of *A. cernua*, *A. halleri*, *A. montana*, *A. patens*, *A. pratensis*, *A. vulgaris*, and on the needles of *Pinus silvestris* in Japan, Siberia, Russia, Switzerland, Denmark, France, Italy, Austria, Hungary, and Germany.

ANEMONE—Continued.
Micropeltis wettsteinii v. Hoehn. Black fruiting bodies on upper surfaces of leaves of *A. wettsteini* in Brazil.
Ochropsora ariae (Fckl.) Syd. See Sorbus.
Phyllosticta anemones P. Brun. Circular to irregular, gray or gray-brown, spots on leaves of *A. japonica* in France.
Phyllosticta nigro-maculans Sacc. Black spots, often involving entire leaf area, on *A. nemorosa* in France, Spain, and Italy.
Physoderma deformans Rostr. On *A. nemorosa* and *A. ranunculoides* in Denmark.
Puccinia japonica Diet. Chestnut-colored rust pustules on leaves and petioles of *A. flaccida* in Japan.
Puccinia schelliana Thuem. Powdery, dark-brown rust pustules on yellow leaf spots of *A. narcissiflora* in Russia.
Puccinia singularis P. Magn. Powdery, cinnamon-brown rust pustules, on pale circular sunken spots of *A. altaica* and *A. ranunculoides* in Japan, Yugoslavia, Rumania, Spain, France, Denmark, Austria, and Hungary.
Puccinia vesiculosa Schlecht. Powdery, brown rust pustules, in circular spots, on leaves of *A. narcissiflora* in Alaska.
Ramularia pulsatillae Höll. Dull yellow, indefinite spots, generally near the tips of leaves of *A. (Pulsatilla) nigricans* in Hungary.
Sclerotinia tuberosa (Hedw.) Fckl. Attacks the roots of *A. nemorosa* in Great Britian, Bohemia, Russia, and Austria, transforming them into hard, black sclerotia resembling the roots.
Septocylindrium anemones Delacr. Large, dirty, white spots on leaves of *A. sylvestris* and *A. sylvatica* in France.
Septoria altaica Thuem. On leaves of *A. altaica* in Siberia.
Septoria brunaudii Sacc. and Syd. Large, subcircular to irregular, gray or ashen spots, with narrow brown margins, on leaves of *A. japonica* in France.
Septoria ficariae Desm. Ashen spots with brown margins on leaves of *A. nemorosa* and *A. ranunculoides* in Denmark, France, Belgium, and Great Britain.
Septoria silvicola Desm. On leaves of *A. nemorosa* in Russia, France, and Belgium.
Synchytrium anemones Wor. Small galls on under sides of leaves and stems of *A. nemorosa, A ranunculoides, A. silvestris,* and *A. virginiana* in Europe and North Africa. Also collected once in Iowa on *A. cylindrica.*

ANGELICA. Perennial herbs.
Mycosphaerella angelicae (Fr.) A. Pot. On *A. montana* in Switzerland and Italy.
Phyllachora angelicae (Fr.) Fckl. On leaves of *A. decursiva* and *A. sylvestris* in Japan, Siberia, Switzerland, France, and Finland. A doubtful species reported by Theissen as probably only an immature *Mycosphaerella.*
Puccinia angelicae-edulis Miy. Powdery brown to black rust pustules, on blades and petioles of leaves of *A. matsumurae, A. miqueliana, A. polyclada, A. polymorpha, A. shikokiana, A. ursina,* and *A. vulgata* in Japan.
Puccinia angelicae-mamillata Kleb. Brown rust pustules on leaves and petioles of *A. sylvestris, Polygonum bistorta* and *P. viviparum* in Helvetia and Italy.
Puccinia angelicicola P. Henn. Black rust pustules on yellow spots on leaves of *A. miqueliana* in Japan.
Puccinia karstenii Lindr. Brown rust pustules on leaves and petioles of *A. sylvestris* in Sweden, Denmark, and Finland.
Puccinia miyabeana Miy. Dark-brown rust pustules on leaves of *A. hakonensis, A. kiusiana,* and *A. utilis* in Japan.
Puccinia psoroderma Lindr. Brown rust pustules on *A. purpurascens* in the Caucasus.
Ramularia angelicae v. Hoeh. On leaves of *A. sylvestris* in Spain, Austria, and Denmark.
Ramularia archangelica Lindr. White spots with brown borders on leaves of *A. archangelica* in Lapland.
Septoria bondarzewii P. Henn. Yellow leaf spots on *A. sylvestris* in Russia.

ANGOPHORA. Gum myrtle. Trees or shrubs.
Glocosporium angophorae F. Tassi. Anthracnose on branches and petioles of *A. costata* (*A. lanceolata*) in Australia.

ANGRAECUM. See Orchidaceae.

ANISACANTHUS. Ornamental shrubs.
Puccinia anisacanthi Diet. and Holw. Brown rust pustules on leaves of *Anisacanthus* sp. in Mexico.

ANNONA. Soursop. Custard apple. Cherimoya. Sugar apple. Tropical fruit trees.
Aecidium anonae P. Henn. Yellow rust pustules on leaves of *Annona* sp. in Brazil.
Ascochyta cherimolae Thuem. Irregular white or yellow leaf spots, on *A. cherimola* in Ecuador and Portugal.
Colletotrichum anonicola Speg. Subcircular, gray spots, with fuscous margins, on leaves of *A. cherimola* in Argentina.
Corticium salmonicolor B. and Br. See Citrus.
Fomes lamaoensis Murr. See Hevea.
Phyllachora atro-maculans Syd. Dark-brown, circular to irregular, sunken-leaf spots on *Annona* sp. in Costa Rica. Black opaque stromata are produced on the spots.
Phyllosticta anonae P. Henn. Circular to oblong, pale spots, with dark-brown margins, on leaves of *Annona* sp. in Brazil.
Phyllosticta cherimoliae Alm. and Cam. Elongate gray spots, with brown margins, on leaves of *A. cherimola* in Portugal.
Phyllosticta insularum Sacc. Causes leaves to die, beginning at margins and extending irregularly inward. On *A. muricata* in the Philippines.
Pocosphaeria anonae Rangel. On leaves of *A. reticulata* in Brazil.
Uredo cherimoliae Lagh. Light-brown, effused spore masses on lower surfaces of leaves of *A. cherimola, A. reticulata, A. squamosa,* and *Rollinia multiflora* in Ecuador, Cuba, Trinidad, and sparingly in Florida.

ANOMATHECA. See Lapeyrousia.

ANTHEMIS. Camomile, sometimes spelled "chamomile." Annual, biennial and perennial herbs.
Peronospora anthemidis Gäum. Downy mildew on leaves of *A. austriaca* and *A. cotula* in Norway, Holland, Denmark, Bohemia, Austria, and Germany.
Peronospora radii De By. See Chrysanthemum.
Puccinia anthemidis Syd. Dark-brown, rust pustules on stems and leaves of *A. altissima* in France.
Puccinia baumleriana Bub. Dark-brown, rust pustules on leaves of *A. tinctoria* in Hungary.
Ramularia anthemidis Höll. Indefinite spots on leaves of *A. ruthenica* in Hungary.

ANTHERICUM. ST. BERNARD'S LILY.

Aecidium antherici P. Henn. and Evans. Yellow pustules on effuse oblong yellow spots on leaves of *Anthericum* sp. in the Union of South Africa.

Puccinia asphodeli Duby. See Asphodelus.

ANTHOLYZA. Cormous plants related to *Gladiolus*.

Aecidium antholyzae Bub. Yellow rust pustules on leaves of *A. aethiopica* in the Union of South Africa.

Uromyces antholyzae Syd. This rust produces dark-brown pustules on both leaf surfaces of *A. abyssinica* in Abyssinia.

ANTHOXANTHUM. Aromatic grasses.

Dilophia graminis (Fckl.) Sacc. See Triticum.

Helminthosporium dematioideum Bub. and Wrobl. On leaves of *A. odoratum* in Bohemia. Reported from New York.

Puccinia anthoxanthi Fckl. Brown to dark-brown rust pustules on leaves, leaf-sheaths and stems of *A. odoratum* in Great Britain, Belgium and Germany.

Puccinia borealis Juel. See Agrostis.

Puccinia fujiensis S. Ito. Brown rust pustules on leaves of *A. japonicum* in Japan.

Septoria oxyspora Penz. and Sacc. On leaves of *A. odoratum*, *Arundo donax*, and *Hierochloa borealis* in Italy and Denmark.

Uredo anthoxanthina Bub. Powdery, yellow rust pustules on leaves of *A. odoratum* in Great Britain, Switzerland, and Germany.

ANTHURIUM. Ornamental tropical aroids, much cultivated in greenhouses.

Colletotrichum anthurii Delacr. Dark-brown spots on leaves of *Anthurium* sp. in France.

Gloeosporium anthurii Allesch. On leaves and petioles of *A. martianum* in Germany. Probably the same as the following species.

Gloeosporium thumenii (von Th.) Sacc. Black, oblong acervuli on leaves of *Aletris fragrans*, *Anthurium leuconeurum*, *Alocasia cucullata*, *A. violacea*, *Curludovica atrovirens*, *Dracaena draco*, *Dieffenbachia contorta* and *Smilax atrovirens* in France, Denmark, and Austria.

Mycosphaerella anthurii Miles. Large, irregular, white areas on leaves of *A. acaule* in Porto Rico. The diseased areas become dry and papery, often dropping out.

Phyllachora engleri Speg. Black, circular, scattered, slightly raised, shining stromata on leaves of *A. dominicense*, *A. scandens*, *Philodendron* sp. and *Spathycarpa* sp. in the West Indies, Central and South America.

Phyllosticta cavarae Trinch. Irregular, yellow to brown spots, with ashen brown or dirty white distinct margins, on leaves of *A. crassinervium* in Italy.

Physalospora inanis (Schw.) Sacc. On leaves of *Anthurium* sp. and other aroids in Ecuador and Surinam.

Uredo anthurii Har. Rust on leaves of *A. scandens* in Porto Rico and France.

ANTHYLLIS. KIDNEY VETCH. Perennial herbs, including ornamental and forage plants.

Ascochyta vulnerariae Fckl. Purple spots on leaves of *A. vulneraria* in Portugal and Germany.

Cercospora radiata Fckl. Dull-brown spots on leaves of *A. dilleni* var. *dalmatica* and *A. vulneraria* in Spain, Italy, Switzerland, Denmark, Russia, and Germany.

Ramularia schulzeri Bacuml. Dull-yellow to reddish spots, on leaves of *A. vulneraria*, *Lotus corniculatus*, and *L. uliginosus* in France, Austria, Hungary, and Germany.

Septoria anthyllidis Sacc. Brown spots, becoming whitish, on leaves of *A. dilleni* and *A. vulneraria* in Dalmatia, Sardinia, Russia, Austria, and Hungary.

Septoria henryana Trav. Circular to irregular, grayish-white spots with yellow-gray margins, on leaves of *A. vulneraria* in Italy.

Typhula trifolii Rostr. See Trifolium.

Uromyces anthyllidis Grev. Cinnamon-brown to dark-brown rust pustules on leaves of *A. dilleni*, *A. maritima*, *A. polyphylla*, *A. tetraphylla*, *A. vulneraria*, *Hippocrepis bicontorta*, *H. ciliata*, *H. multisiliquosa*, *H. unisiliquosa*, *Lotus aegyptiacus*, *L. cytisoides*, *L. ornithopodioides*, *Lupinus albus*, *L. luteus*, *Medicago arabica*, *M. hispida*, *M. orbicularis*, *Trigonella foenum-graecum*, *T. monspeliaca*, and *T. occulta* in Madeira, Tripoli, Tunis, Morocco, Egypt, India, and Europe.

ANTIDESMA. CHINESE LAUREL. Tropical trees.

Cronartium antidesmae-dioicae Syd. Leaf rust on *A. ghaesembilla* in the Philippines.

Guignardia fusco-coriacea Rehm. On leaves of *A. bunius* and *Antidesma* sp. in the Philippines.

Phyllosticta ghaesembillae Koord. Subcircular, solitary or confluent, brown spots, becoming whitish, on leaves of *A. ghaesembilla* in Java.

Puccinia aequalis P. Henn. Yellow-brown to dark-brown rust pustules on leaves of *A. venosum* and *Antidesma* sp. in tropical Africa.

Uredo antidesmae Rac. Golden-yellow rust pustules on leaves of *A. bunius* in Java.

Uredo antidesmae-dioicae Rac. Brown rust pustules on circular sunken spots on leaves of *A. dioica* and *A. ghaesembilla* in Java and the Philippines.

ANTIRRHINUM. SNAPDRAGON. Flower-garden and greenhouse herbs.

Ascochyta decipiens Pass. Dark-brown spots on stems and branches of *A. majus* in Italy.

Cercospora sp. Shot-hole disease. Minute, buff-colored spots appear on the lower leaves, increasing in size rapidly and spreading to the upper leaves, calyces, seed pods and stems of younger shoots, the latter being girdled causing them to die back rapidly. The spots are more or less circular in shape, with a well defined margin, and are surrounded by a ring of discolored tissue. The central areas, which are slightly sunken, dry out and fall, giving a shot hole effect. On cultivated snapdragon (*A. majus*) in Great Britain.

Cercosporella antirrhini Wakef. Small sunken patches on leaves and stems of *A. majus* in Great Britain. These patches have a dark-green, water-soaked appearance at first, later becoming dull yellow.

Fusarium udum Butl. See Dianthus.

Peronospora antirrhini Schroet. Downy mildew on leaves of *A. majus* and *A. orontium* in Denmark, Switzerland, and Germany.

Phyllosticta linariae Sacc. Subcircular brown spots, becoming whitish, with narrow reddish margins on leaves of *A. hispanicum* and *Linaria elatine* in France.

Pseudomonas antirrhini Takimoto. Bacterial leaf spot of *A. majus* in Japan.

Septoria antirrhini Desm. Yellow spots on stems and leaves of *A. majus* in Great Britain, France, Italy, Portugal, Dalmatia and Australia.

AOTUS. Leguminous shrubs.

Cronartium jacksoniae P. Henn. See Jacksonia.

APHELANDRA. Tropical ornamental shrubs.

Aecidium aphelandrae P. Henn. Circular dull-brown spots, with dark margins, on leaves of *Aphelandra* sp. in Brazil.

APIUM. CELERI Ag. Celery.

Bacillus apii Mig. Bacterial rot of *A. graveolens* in Italy.

Bacillus apiovorus Worm. Reported as the cause of a heart rot of celery (*A. graveolens*) in Great Britain. Probably not distinct from *B. caratovorus* Jones.

Cercosporella pastinacae Karst. On leaves of *A. graveolens* in Finland.

Phlyctaena magnusiana (Allesch.) Bres. On leaves of *A. graveolens* in Russia, Italy and Germany. Reported from New York.

Puccinia apii Desm. Powdery, cinnamon-brown to dark-brown rust pustules on leaves and petioles of *A. graveolens*, *A. prostratum*, and *Selinum japonicum* in Tasmania, India, Japan, Spain, Italy, Finland, Sweden, Denmark, Switzerland, France, Holland, Belgium, Great Britain, Austria, Hungary, and Germany.

Puccinia thumeni (Thuem.) McAlp. Cinnamon-brown to dark-brown rust pustules on both surfaces of leaves of *A. graveolens* and *A. prostratum* in Victoria and Tasmania.

Septoria apiicola Spog. Leaf spot on *A. australe* in Chile and Argentina.

Uredo cundinamarcensis Mayor. Brown rust pustules on leaves of *A. ternatum ranunculifolium* in Colombia.

APOSERIS. See Hyoseris.

AQUILEGIA. COLUMBINE. Hardy herbaceous perennials.

Actinonema pallens Sacc. and Cav. On leaves of *A. vulgaris* in Italy.

Haplobasidium pavoninum v. Hoeh. Large, solitary or marginal yellow spots, with purple-brown margins on leaves of *A. vulgaris* in Spain and Austria.

Marssonina aquilegiae (Rbh.) Rostr. Subcircular, ashen colored spots, with dark margins, on leaves of *A. vulgaris* in Great Britain, France, and Denmark.

Phyllosticta aquilegicola Brun. Dull-brown spots on leaves of *A. vulgaris* in Italy.

Puccinia agrostidis Plowr. See Agrostis.

Puccinia melasmioides Tranzsch. Brown rust pustules on indefinite spots on leaves and petioles of *A. akitensis* and *A. vulgaris* in Japan and Turkestan.

Septoria penzigii Cav. and Mor. Whitish leaf spots, with broad brown margins, on *A. vulgaris* in Italy and Russia.

ARABIS. ROCK CRESS. Perennial or annual herbs, mostly rock plants.

Peronospora arabidis alpinae Gäum. Downy mildew on leaves of *A. alba* and *A. alpina* in Switzerland.

Peronospora arabidis hirsutae Gäum. As above on *A. arenosa* and *A. hirsuta* in France, Switzerland, Norway, Denmark, Austria, and Germany.

Peronospora arabidis turritae Gäum. As above on *A. turrita* in Switzerland.

Phyllosticta alpina Allesch. and var. **helvetica** Jaap. Large, circular or elongate definite spots on leaves of *A. alpina* in Bavaria and Switzerland.

Puccinia thlaspeos Schubert. Brown rust pustules on leaves of *A. halleri*, *A. hirsuta*, *A. thaliana*, *Thlaspi alpestre*, *T. arvense*, *T. calaminaris*, *T. montanum*, *T. perfoliatum*, *T. praecox*, and *T. rotundifolium*, in Alaska, Russia, Sweden, Switzerland, Holland, Belgium, France, Austria, Hungary, and Germany.

Septoria arabidis Sacc. On leaves of *A. ciliata* in Italy.

Ustilago thlaspeos (Beck.) Lagh. A smut forming black spore masses in the ovules in pods of *A. hirsuta*, *A. petraea* and *Thlaspi alpestre* in Switzerland and Austria.

ARACHIS. PEANUT.

Cercospora sp. A leaf spot, due to a *Cercospora* sp., said to be distinct from *C. personata*, has caused considerable losses to the peanut (*A. hypogaea*) in India.

Hypochnus cucumeris Frank. See Cucumis.

Mosaic or Curl. An obscure disease of *A. hypogaea*, probably of the mosaic group of diseases, occurs in the Union of South Africa, Java, and other parts of the Orient. It is characterized by a dwarfing of infected plants and the yellowing and crinkling of the foliage. The disease is called "crinkle leaf" or rosette in south Africa.

Rhizoctonia destruens Tassi. See Solanum.

Sclerotinia arachidis Hanzawa. Stem rot of *A. hypogaea* in Japan.

Sclerotinia miyabeana Hanzawa. Stem rot of *A. hypogaea* in Japan.

Uredo arachidis Lagh. Numerous dull-brown rust pustules on the under sides of leaves of *A. hypogaea* throughout the West Indies, Central America, and South America. This disease has proven itself the limiting factor of production in some of the West Indies. It has been found in one locality in Florida, but is thought to have been eradicated.

ARALIA. Spikenard. Sarsaparilla. Udo. Herbs, shrubs, and trees, often spiny.

Cercospora araliae P. Henn. Effuse, dull-brown spots on leaves of *A. sinensis* and *A. spinosa* in Japan.

Phyllosticta araliae Sacc. and Berl. Large yellow to ashen spots, with dull yellow margins, on leaves of *Aralia* sp. in Algeria.

Physalospora araliae Pat. On leaves of *Aralia* sp. in Ecuador.

Puccinia araliae-cordatae P. Henn. Brown to black rust pustules on brown spots on leaves of *A. cordata* in Japan.

ARAUCARIA. MONKEY PUZZLE. NORFOLK ISLAND PINE. Ornamental coniferous trees.

Coniothyrium pallido-fuscum Sacc. See Chamaecyparis.

Gloeosporium araucariae Karst. and Har. Anthracnose on leaves and cones of *A. rulei* in New Caledonia.

Haplodothis araucariae (Rehm.) v. Hoeh. Wart-like stromata on needles of *A. brasiliana* in Brazil.

Phyllosticta araucariae Wor. On needles of *A. imbricata* in Russia.

ARBUTUS. STRAWBERRY TREE. Broad-leafed evergreen trees and shrubs.

Ascochyta unedonis Sacc. (*Ascochytella unedonis* [Sacc.] Fl. Tass.) Ashen colored spots with red dish margins on leaves of *A. unedo* in France and Spain.

Cercospora molleriana Wint. Circular to irregular, often confluent, gray leaf spots on *A. andrachne*, *A. longifolia*, and *A. unedo* in Russia, Portugal, and Italy.

Coryneum microstictum B. and Br. On *A. unedo* in Italy.

Exobasidium unedonis Maire. The fungus deforms the branches and destroys the leaves of *A. unedo* in Algeria. It fruits on the under surface of the leaves and branches.

Mycosphaerella unedonis Jaap. On leaves of *A. unedo* in Dalmatia

Phyllosticta arbuti (Desm.) Sacc. Small fuliginous-colored spots on leaves of *A. unedo* in France

Phyllosticta arbuti-unedonis Pass. On leaves of *Arbutus* sp. in Portugal.

Septoria arbuti Pass. On leaves of *A. unedo* in Italy.

Septoria hiascens Sacc. Small dirty-white to dark-purple spots, with slightly raised margins, on leaves of *Arbutus* sp. in Mexico.

Septoria unedonis Rob. and Desm. Small, irregular, numerous whitish spots with purple margins on leaves of *A. canariensis* and *A. unedo* in Algeria, Albania, Yugoslavia, Portugal, France, Italy, Great Britain, and Austria.

ARDISIA. ICACOREA Ag. Ornamental shrubs.
Helminthosporium flagellatum Yates. On *A. disticha* in the Philippines.
Phyllachora ardisiae P. Henn. Black tar spot on leaves of *A. candolleana* in the Philippines.
Phyllosticta ardisiae Trinch. On leaves of *A. humilis* in Italy.
Physalospora circinana Pat. Small fuscous circular spots on leaves of *Ardisia* sp. in Brazil.
Uromyces myrsines Diet. Brown rust pustules on leaves of *A. compressa* and *Myrsine* sp. in Brazil and Costa Rica.
ARECA. Betal palm. See Palmae.
AREGELIA. Epiphytic hothouse plants of the *Bromeliaceae*.
Lembosia bromeliacearum Rehm. Black fruiting bodies on dark-brown circular spots on leaves of *A. comparta* and *A. cruenta* in Brazil.
ARENARIA. SANDWORT. See, also, Alsine. Low herbs, suitable for borders and rockwork.
Helminthosporium nubigenum Speg. On leaves of *A. tetraquetra* in Italy.
Laestadia arctica Rostr. On leaves of *A.* (*Honckenya*) *peploides* in Greenland.
Peronospora campestris Gaum. Downy mildew on lower surfaces of leaves of *A. ciliata*, *A. serpyllifolia*, and *A. trinervia* in France, Switzerland, Belgium, Denmark, Russia, Austria, and Germany.
Peronospora honckenyae Syd. Downy mildew on leaves of *A.* (*Honckenya*) *peploides* in Scotland.
Puccinia modica Holw. Brown to black powdery rust pustules on leaves of *A. alsinoides*, *A. lanuginosa*, *A. peyritschii*, and *A. reptans* in Mexico and Guatemala.
Uredo arenariicola P. Henn. Yellow-brown to brown rust pustules on leaves of *A. diffusa* in Argentina.
Uromyces arenariae Tranzsch. Linear dark-brown rust pustules on leaves of *A. capillaris* and *A. longifolia* in Russia.
Uromyces arenariae-grandiflora Mayor. Leaf rust on *A. grandiflora* in Switzerland.
ARENGA. Sugar palm. See Palmae.
ARGEMONE. PRICKLE POPPY. Mexican poppy. Prickly herbs.
Peronospora indica Gäum. Downy mildew on leaves of *A. mexicana* in India. The name is occupied by *P. indica* Syd. on *Calceolaria*.
Rhizoctonia napi West. See *Brassica*.
Septoria chelidonii Desm. See *Chelidonium*.
ARGYREIA. SILVER CLIMBER. Ornamental climbers.
Aecidium argyreiae B. and Br. Yellow rust pustules on leaves of *A. argentea*, *A. elliptica*, *A. pomacea*, *A. populifolia*, and *A. speciosa* in India and Ceylon.
Cercospora cordobensis Speg. Yellow circular spots on leaves of *A. megapotamica* in Ceylon and Argentina.
Uredo argyreiae Petch. Dark-brown rust pustules on leaves of *A. tiliaefolia* in Ceylon.
ARISAEMA. DRAGON-ROOT. JACK-IN-THE-PULPIT. Aroids with tuberous roots.
Septoria arisaemae Petch. Leaf spots on *A. leschenaultii* in Ceylon.
ARISARUM. Ornamental aroids.
Phyllosticta arisari Bres. Subcircular dull-brown spots on leaves of *A. vulgare* in Portugal.
Phyllosticta arisaricola Sacc. and Syd. Circular brown spots, with light-brown margins, on leaves of *A. vulgare* in Tunis.
Septoria arisari (Dur. and Mont.) Sacc. Dark irregular spots on leaves of *A. simorhinum* and *A. vulgare* in France and Algeria.
Septoria arisaricola Pat. Circular scattered or confluent whitish spots on leaves of *A. vulgare* in Tunis.
ARISTEA. Greenhouse herbs.
Puccinia dehiscens Syd. Brown rust pustules on leaves of *Aristea* sp. in the Union of South Africa.
ARISTOLOCHIA. DUTCHMAN'S-PIPE. PELICAN FLOWER. Ornamental perennial vines.
Ascochyta aristolochiae Sacc. Subcircular dark-brown to black leaf spots on *A. clematitis* in Yugoslavia and Italy.
Ascochyta aristolochicola Höll. On capsules of *A. clematitis* in Hungary.
Ascochyta siphonis Allesch. Subcircular to irregular black spots, becoming ashen, with black margins, on both sides of leaves of *A. sipho* in Germany.
Ascochyta versicolor Bub. Circular to angular dark-brown spots, with raised black margins, on leaves of *A. clematitis* in Tyrol.
Cercospora olivascens Sacc. Olive-gray spots on leaves of *A. clematitis* and *A. longa* in France and Italy.
Meliola atricapilla Starb. Black mold on leaves of *Aristolochia* sp. in Brazil.
Mycosphaerella aristolochiae Syd. On leaves of *A. tagala* in the Philippines.
Phyllosticta aristolochiae F. Tassi. Round or angular to irregular dirty-white spots, with brown margins, on leaves of *A. clematitis*, *A. sempervirens*, and *A. sipho* in Italy and Germany. Reported once from the United States.
Phyllosticta siphonis Kab. and Bub. Small angular, finally confluent, spots on upper surfaces of leaves of *A. sipho* in Bohemia.
Puccinia aristolochiae ((D. C.) Wint. Yellow to dark-brown rust pustules on leaves of *A. botta*, *A. clematitis*, *A. longa*, *A. maurorum*, *A. pallida*, *A. poicilantha*, and *A. rotunda* in Russia, Kurdistan, Anatolia, Syria, Spain, Italy, France, Austria, and Germany.
Sclerotium zeylanicum (B. and Br.) Petch. Root and collar rot of *A. leuconeura* in Ceylon. See, also, Thea.
Septoria aristolochiae Sacc. On leaves of *A. clematitis* in Italy.
ARISTOTELIA. Evergreen trees or shrubs.
Cercospora aristoteliae Cke. Subcircular brown spots, with red margins, on leaves of *A. racemosa* in New Zealand.
Phyllosticta aristoteliae Speg. Indefinite angular dull-brown spots on leaves of *A. macqui* in Chile.
Septoria maqui P. Henn. Dark-brown spots, with red margins, on leaves of *A. macqui* in Chile and Germany.
ARMERIA. STATICE Ag. THRIFT. Sometimes called "sea pink." Perennial herbs, used as border and rock garden plants.
Gloeosporium armeriae Allesch. Anthracnose on scapes of *A. vulgaris* (*Statice armeria*) in Greenland
Phyllosticta armeriae Allesch. On leaves of *A. vulgaris* in Greenland.
Septoria armeriae Allesch. and P. Henn. On leaves of *A.* (*Statice*) *plantaginea* in Greenland, Italy, and France.
Uromyces armeriae (Schlechtd.) Lev. Yellow to dark-brown rust pustules on leaves of *A. alpina*, *A. elongata*, *A. longibracteata*, *A. martinia*, *A. plantaginea*, *A. splendens*, *A. stenophylla*, and *A. vulgaris* in Europe. Reported from California.
ARMORACIA. See Radicula.

ARNICA. Perennial herbs.
Entyloma calendulae (Oud.) De By. See Calendula.
Phyllosticta arnicae Fckl. Indefinite yellow spots on upper surfaces of leaves of *A. montana* in Switzerland. Reported from Colorado.
Septoria arnicae Fckl. Dark-brown spots on leaves of *A. montana* in Switzerland.
ARRACACIA. Umbelliferous herbs. Roots of one species eaten.
Puccinia arracacharum Lindr. Yellow to brown powdery pustules on leaves of *A. bracteata* in Ecuador and Guatemala.
Puccinia imperspicua Syd. Black rust pustules on leaves of *A. multifida* in Mexico.
ARRHENATHERUM. OATGRASS. Cultivated as a meadow grass.
Dilophia graminis (Fckl.) Sacc. See Triticum.
Exobasidium graminicolum Bres. A doubtful species reported as causing indefinite yellow spots on leaves of *A. elatius* and *Bromus* sp. in Germany.
Phyllosticta stomaticola Baeuml. Circular to irregular brown spots, becoming whitish, with red margins, on leaves of *A. elatius* in Hungary.
Puccinia arrhenatheri (Kleb.) Erikss. Yellow aecial stage producing witches'-broom of *Berberis heteropoda, B. hispanica,* and *B. vulgaris;* brown uredo and telial stages on *Arrhenatherum elatius* in Turkestan, Algeria, Spain, France, Sweden, Austria, Hungary, and Germany.
Septoria culmifida Lind. See Phleum.
Uromyces sesell-graminis Ed. Fisch. Brown rust pustules on leaves of *Arrhenatherum elatius, Melica ciliata, Poa* sp., and *Seselis glaucus* in Europe.
Ustilago dura App. and Gassn. Smut in inflorescences of *A. elatius* in Europe.
ARTABOTRYS. TAIL GRAPE. Woody tropical climbers.
Uredo artabotrydis Syd. Brown rust pustules on leaves of *A. odoratissima* in Formosa.
ARTEMISIA. WORMWOOD. Aromatic and bitter herbs and shrubs.
Cercospora ferruginea Fckl. On leaves of *A. vulgaris* in Japan, Poland, Bohemia, Italy, Denmark, Austria, and Germany.
Cercospora fuscescens Niessl. On stems of *A. vulgaris* in Europe.
Cercospora olivacea Otth. On leaves of *A. absinthium* in Switzerland.
Erysiphe taurica Lev. See Althaea.
Nematostoma artemisiae Syd. On living leaves of *A. vulgaris* in Japan.
Puccinia artemisiae-keiskeana Miura. Rust on leaves of *A. keiskeana* in Japan.
Puccinia artemisiella Syd. Black rust pustules on leaves of *A. vulgaris* in Japan, India, Russia, and Germany.
Puccinia artemisilicola Syd. Brown rust pustules on leaves and stems of *A. austriaca* and *A. campestris* in Denmark, Russia, Austria, Hungary, and Germany.
Puccinia ferruginosa Syd. Powdery, dull-brown rust pustules on small, sunken, brown leaf spots on *A. vulgaris* var. *japonica* and *Artemisia* sp. in India and Japan.
Septoria artemisiae Pass. Dull-brown spots on leaves of *A. vulgaris* in Italy.
Septoria kriegeriana Bres. On leaves of *A. vulgaris* in Saxony.
Uredo artemisiae-japonica Diet. Brown rust pustules on leaves of *A. japonica* in Japan.
ARTOCARPUS. BREADFRUIT. JACKFRUIT. Tropical fruit trees.
Catacauma microcentum Theiss. and Syd. See Ficus.
Cercospora artocarpi Syd. On leaves of *A. communis* (*A. incisa*) in the Philippines.
Corticium salmonicolor B. and Br. See Citrus.
Diplodia artocarpi Sacc. Causes twig die-back and fruit rot of *Artocarpus* sp. in Java and the Philippines. Probably not distinct from *D. cacaoicola.*
Fomes lamaoensis Murr. See Hevea.
Fomes lignosus Klotzsch. See Hevea.
Marchalia constellata (B. and Br.) Sacc. Circular, flat, black stromata on leaves of *Artocarpus* sp. in the Philippines and *A. integra* (*A. integrifolia*) in Ceylon.
Phyllosticta sp. On leaves of *A. communis* in India.
Phyllosticta (?) **artocarpi** Speg. Circular, determinate white spots, with broad dark margins, on leaves of *A. integra* (*A. integrifolia*) in Argentina.
Phytophthora sp. Causes fruit rot of *A. incisa* in Ceylon.
Phytophthora faberi Maubl. See Theobroma.
Rhizopus artocarpi Rac. Causes a soft rot of fruit and male inflorescences of *A. integra* in the Philippines.
Rosellinia pepo. Pat. See Citrus.
Septoria artocarpi Cke. Circular, brown sunken spots on leaves of *A. integrifolia* in India.
Septoria eburnea v. Hoeh. Circular to angular or irregular leaf spots on *A. communis* in Samoa.
Sphaerostilbe repens B. and Br. See Hevea.
Uredo artocarpi B. and Br. (*Physopella artocarpi* [B. and Br.] Arth.) Numerous dull-brown rust pustules covering lower surfaces of leaves of *A. camansi, A. communis, A. lacoocha,* and *Castilla elastica* in Ceylon, Cuba, and Porto Rico.
ARUM. Variegated leafed, herbaceous aroids.
Ascochyta arophila Bub. Circular to elliptical brown spots, becoming white at the centers, on leaves of *A. italicum* in Montenegro.
Colletotrichum montemartinii Togn. Anthracnose on *A. italicum* in Italy.
Phyllosticta aricola Bub. Brown, circular, or elongate leaf spots, becoming white at the centers, on *A. italicum* in central Europe.
Phyllosticta scrophulariae-bosniacae Bub. On leaves of *A. italicum* and *A. bosnia* in Central Europe.
Phyllosticta tuzsonii Bub. Elongate to irregular yellow spots with white centers, on leaves of *A. italicum* in Hungary.
Ramularia ari Fautr. Gray leaf spots on *A. italicum* and *A. maculatum* in Spain, France, and Dalmatia.
Septoria ari Desm. Subcircular brown spots on leaves of *A. italicum* and *A. maculatum* in Algeria, Yugoslavia, Bulgaria, France, and Italy.
Ustilago plumbea Rostr. A smut producing black spore masses on leaves and petioles of *A. maculatum* in Denmark.
ARUNCUS. GOATSBEARD. Ornamental, tall perennial herbs.
Ascochyta aruncl Sacc. On stems of *A. sylvester* in Italy.
Colletotrichum exiguum Penz. and Sacc. Numerous, small, brown leaf spots on *A. sylvester* in Italy and Austria.
Ochropsora ariae (Fckl.) Syd. See Sorbus.
Phyllosticta aruncina Sacc. Small, grayish-white leaf spots on *A. sylvester* in Italy.
Phyllosticta griseo-fusca Bub. Small, angular to confluent leaf spots dull green, then brown above, gray beneath on *A. sylvester* in Bohemia.
Ramularia spiraeae-aruncl (Sacc.) Allesch. On leaves of *A. sylvester* in Switzerland and Austria.
Septoria aruncl Pass. Gray-white leaf spots with dark-red margins on *A. sylvester* in Italy.

ARUNDINA. See Orchidaceae.
ARUNDINARIA. See Bambuseae.
ARUNDO. GIANT REED. Tall perennial grasses.
Aplospora montagnei Sacc. Linear black stromata on leaves of *A. donax* and *A. mauritanica* in Algiers, Portugal, and France.
Ascochyta donacina Sacc. On culms of *A. donax* in Italy and France.
Phyllachora atrofigurans Rehm. Black stromata on leaves of *A. cannaeformis* in the Philippines.
Phyllachora cyperi Rehm. var **donacis** Berl. and F. Sacc. "Tar spot" disease on culms of *A. donax* in India and Portugal.
Phyllachora donacina Rehm. Black, convex, orbicular or ellipsoid stromata in parallel series on leaves of *A. cannaeformis* in the Philippines.
Physalospora festucae (Lib.) Sacc. See Andropogon.
Puccinia isiaca (Thuem.) Wint. Rust-brown to dark-brown rust pustules on leaves of *A. isiaca* and *Phragmites communis* in Egypt, Asia Minor, and Russia. Aecia may possibly occur on *Raphanus sativus*.
Puccinia torosa Thuem. Brown rust pustules on leaves of *A. donax* in the Union of South Africa.
Septoria donacina Sacc. Indefinite spots on culms of *A. donax* in Italy.
Septoria donacis Pass. Small dry spots on leaves of *A. donax* in Dalmatia, Italy, France, and Portugal.
Septoria oxyspora Penz. and Sacc. See Anthoxanthum.
ASARUM. WILDGINGER. Low, nearly stemless herbs.
Septoria asari Sacc. Circular to angular whitish spots, with black borders, on leaves of *A. europaeum* in Italy.
Septoria asaricola Allesch. Subcircular to angular, brown then gray spots, often confluent, on leaves of *A. europaeum* in Russia and Bavaria.
ASCLEPIAS. MILKWEED. BUTTERFLY WEED. Perennial, milky-juiced herbs.
Cercospora asclepiadis P. Henn. Numerous circular leaf spots on *Asclepias* sp. in Brazil.
Cronartium flaccidum (Alb. and Schw.) Wint. See Paeonia.
Mycosphaerella asclepiadis Siem. On leaves of *A. incarnata* in Caucasia.
Puccinia concrescens E. and E. Leaf rust on *A. curassavica* and *A. nivea* in Porto Rico, Cuba, Bahamas, and South America.
Septoria schiechteriana P. Henn. Pale leaf spots, with dark brown margins, on *A. fruticosa* in the Union of South Africa.
Septoria syriacae Kab. and Bub. Numerous circular to angular often confluent, spots on leaves of *A. syriaca* in Bohemia.
ASPARAGUS. Herbaceous perennials and tender woody shrubs and vines. One species used for food.
Aecidium schiechterianum P. Henn. Round yellow spots in which yellow rust pustules appear, are formed on the leaves of *A. medeoloides* in south Africa.
Botryosphaeria dispersa De Not. On *A. officinalis* in Europe.
Cercospora asparagi Sacc. Dirty-white to gray spots on false leaves and branches of *A. officinalis* in Brazil, Cuba, Argentina, and Italy.
Cercosporina asparagicola Speg. On *A. officinalis* in Argentina.
Colletotrichum sp. Anthracnose on stems of *Asparagus* sp. in Brazil.
Coniothyrium sp. Produces stem cankers on stems of *Asparagus* sp. in Brazil.
Hysterostomella tenella Syd. On leaves and stems of *A. striatus* and *Asparagus* sp. in the Union of South Africa.
Leptosphaeria circinans (Fckl.) Sacc. On roots and stems of *A. officinalis*, *Beta vulgaris*, *Medicago sativa*, *Phaseolus* sp., *Solanum tuberosum*, *Trifolium pratensis*, and *T. repens* in Italy, Russia, and Germany.
Leptosphaeria indica Syd. and Butl. On *Asparagus* sp. in India.
Melanospora asparagi Arnaud. Attacks the base of the stalks of *A. officinalis* in France, preventing further development.
Ophiobolus compar Karst. Purple sunken spots, in which small, black, fruiting bodies appear, are formed on stems of *A. officinalis* in Finland.
Puccinia asparagi-lucidi Diet. Chestnut-colored rust pustules, becoming dark brown to black on both leaf surfaces and on stems of *A. lucidus* and *A. schoberioides* in Japan.
Puccinia phyllocladiae Cke. This rust produces powdery brown pustules on the lower leaf surfaces and on stems of *A. falcatus* in Natal and Ceylon.
Zopfia variospora (Boud.) Arnaud (*Z. rhizophila* Rabenh.) On *A. acutifolius*, *A. horridus*, and *A. officinalis* in France, Italy, and Algeria.
ASPERULA. WOODRUFF.
Mycosphaerella asperula Roum. and Fautr. On leaves of *A. tinctoria* in Esthonia.
Peronospora calotheca De By. Downy mildew on leaves of *A. odorata* and *A. tinctoria* in central and north Europe.
Phyllosticta asperulae Sacc. Indefinite, yellow spots on leaves of *A. odorata* in France and Hungary.
Pseudopeziza autumnalis (Fr.) Karst. See Galium.
Puccinia asperulae-cynanchicae Wurth. Rust on leaves of *A. cynanchica* and *A. odorata* in Spain, Yugoslavia, Switzerland, and Germany.
Puccinia asperulae-odoratae Wurth. On leaves of *A. odorata* in Denmark, Sweden, Switzerland Yugoslavia, and Japan.
Puccinia asperulina (Juel) Lagh. Golden-yellow rust pustules, becoming brown, causing distortion of leaves of *A. ciliata* and *A. tinctoria* in Sweden, Russia, and Hungary.
Puccinia helvetica Schroet. Brown rust pustules on leaves of *A. taurina* in Switzerland, Italy, and Hungary.
Puccinia oliganthae McAlp. Brown to dark-brown rust pustules on leaves and stems of *A. oliganthа* in Victoria (Australia).
Puccinia sphagnea Lindr. Yellow-brown to dark-brown rust pustules on leaves of *A. mollugo* in Europe.
Septoria asperulae Brunaud. and var. **italica** Mass. Irregular gray spots with fuscous margins, soon involving the entire leaf, on *A. odorata* and *A. taurina* in Denmark, Italy, and Hungary.
Septoria asperulae-arvensis Maire. On leaves of *A. arvensis* in French north Africa.
Septoria asperulae-taurinae Bub. Dirty-white spots on upper surfaces of leaves of *A. taurina* in Hungary.
Thekopsora guttata (Schroet.) Syd. Yellow to dark brown rust pustules on leaves of *A. galioides*, *A. odorata*, *Galium aristatum*, *G. hercynicum*, *G. mollugo*, *G. rotundifolium*, *G. saxatilis*, *G. schultesii*, *G. silvaticum*, *G. sylvestris*, *G. spurium*, *G. uliginosum*, *G. verum*, and *Sherardia arvensis* in Europe. Reported from Oregon.
Uromyces asperulae McAlp. Cinnamon-brown to dark-brown rust pustules on leaves and stems of *A. oliganthа* in Australia.

ASPHODELINE. JACOB'S ROD. Hardy, herbaceous plants.

Septoria asphodelines Syd. On leaves of *Asphodeline taurica* in Bulgaria.

ASPHODELUS. ASPHODEL. Hardy, herbaceous, stemless plants.

Cladochytrium asphodeli De By. (*Physoderma asphodeli* [De By.] Vesterg.) On leaves of *Asphodelus* sp. causing dark brown or black irregular spots, in Tunis and Algeria.

Diplodia uncinjensis Bub. On stems of *A. microcarpus* in Montenegro.

Phoma asphodeli Sacc. (*P. asphodelina* Thuem.) On stems and leaves of *Asphodelus* sp. in Spain.

Phomopsis asphodelina (Thuem.) Trav. and Sp. On scapes and capsules of *A. microcarpus* in Spain.

Phyllosticta caulicola Pat. Broad, brown spots with black margins are produced on the stems of *A. microcarpus* in Algeria.

Puccinia asphodeli Moug. Yellow to yellow-brown rust pustules, becoming darker on both surfaces of the leaves of *Anthericum ramosum, Asphodelus albus, A. cerasiferus, A. microcarpus, A. occidentalis, A. ramosus, A. subalpinus,* and *A. tenuifolius* in France, Italy, Portugal, Spain, Greece, Yugoslavia Syria, Algeria, Canary Islands, Corsica, and Balearic Islands.

Puccinia barbeyi (Roum.) P. Magn. Sunken elongate spots occur on both leaf surfaces, and on the stems, in which yellow and brown rust pustules appear. On leaves of *A. fistulosus, A. microcarpus,* and *A. tenuifolius* in France, Greece, Syria, Algeria, Spain, and India.

Puccinia unamunoi Gz. Frag. Yellow to brown rust sori on leaves and scapes of *A. albus* in Spain.

Septoria asphodelina Sacc. On leaves of *A. albus, A. fistulosus* and *A. microcarpus* in Spain and Belgium.

Septoria asphodeli-ramosi Pat. Ashen elongate spots on stems of *A. ramosus* in Tunis.

ASPIDISTRA. Florist's plant grown for its stiff, shining foliage which is often variegated.

Ascochyta aspidistrae Mass. Large, irregular, bleached areas on leaves of *A. lurida* in Great Britain. Reported from Minnesota.

Phyllosticta aspidistrae Oud. Large, rust-colored spots on leaves of *A. elatior* in Holland.

Septoria transversalis Sacc. On leaves of *A. elatior* in Italy.

ASPIDIUM. DRYOPTERIS Ag. WOOD FERN.

Exoascus cornu-cervi Sadeb. On leaves of *A. aristatum* in New Caledonia.

Exoascus fuscus (Giesen.) Sacc. and Syd. Produces fleshy, dull-brown galls on leaves of *A. pallidum* in Sicily and Albania.

Exoascus verstergrenii (Giesen.) Sacc. and Syd. Brown galls on both surfaces of leaves of *A. filix-mas* in the Swedish Baltic Islands, and Switzerland.

Exobasidium brevieri Boud. On leaves of *A. filix-mas* in Esthonia.

Glœosporium filicinum Rostr. Anthracnose of leaves of *A. filix-mas* in Sweden.

Hyalopsora filicum Diet. See Asplenium.

Milesina carpatica A. Wrób. Yellow rust pustules on leaves of *A. filix-mas* in Austria.

Milesina kriegeriana P. Magn. Yellow rust pustules on leaves of *A. aculeatum, A. dilatatum, A. filix-mas* and *A. spinulosum* in Dalmatia, Finland, Denmark, Austria, Hungary and, Germany.

Milesina vogesiaca Syd. Yellow rust pustules on leaves of *A. lobatum* in Austria and Germany.

Mycosphaerella aquilina (Fr.) Schroet. and f. **aspidiorum** Sacc. On leaves of *A. filix-mas* and *Asplenium adiantum* in Switzerland and Esthonia.

Mycosphaerella thelypteridis Syd. On *A. thelypteris* in Germany.

Trabutiella filicina (Sacc. and Sc.) Theiss. and Syd. Black stromata on leaves of *A. lonchitis* in Alaska.

ASPLENIUM. SPLEENWORT. Ferns.

Aphelenchus olesistus Ritz. Bos. See Begonia.

Cercospora asplenii Jaap. On leaves of *A. trichomanes* in Dalmatia.

Exobasidium brevieri Boud. Small, irregular white spots, often confluent, on leaves of *A. filix-femina* in France.

Hyalopsora asplenii-wichuriae Diet. Brown rust pustules on indefinite dirty-brown spots on leaves of *A. wichuria* in Japan.

Hyalopsora filicum Diet. Yellow rust pustules on leaves of *A. decursivae-pinnatum, A. japonicum, A. patens, Athyrium nipponicum, Dryopteris laxa,* and *Pteris semipinnata* in Japan.

Milesina feurichii P. Magn. Yellow rust pustules on leaf blades and petioles of *A. septentrionalis* in Finland, Switzerland, and Germany.

Milesina magnusiana Jaap. Rust pustules on yellow-brown spots on leaves of *A. nigrum* in Dalmatia, Italy, and Corsica.

Milesina murariae (P. Magn.) Grove. Yellow rust pustules on leaves of *A. ruta-muraria* in Scotland, Switzerland, Austria, and Germany.

Mycosphaerella asplenii (Auersw.) Lind. On leaves of *A. septentrionale* in Europe.

Mycosphaerella filicum (Desm.) Starb. See Aspidium.

Phyllosticta asplenii Jaap. On leaves of *A. ruta* in Switzerland.

Ramularia asplenii Jaap. On leaves of *A. ruta* in Switzerland and Germany.

Scirrhodothis confluens (Starb.) Theiss. and Syd. Black stromata on gray leaf spots on *Asplenium* sp. in Sweden.

ASSONIA. See Dombeya.

ASTER. MICHAELMAS DAISY. Perennial herbs.

Aecidium microsporum Diet. Rust on leaves of *A. divaricatus* in Brazil.

Bacillus asteracearum Pava. Small, scattered, ocher-colored spots, first appearon the lower leaves, increasing in size and spreading up the stalk to the flowers which, together with the leaves, turn brown and wither on *Aster* spp. in Italy.

Cephalosporium asteris Dow. A serious wilt disease on cultivated *Aster* in Great Britain is attributed to this fungus. Infected plants show bright-lemon or orange-colored mottling of the lower leaves which finally become brown and shrivelled. An excessive suckering is also in evidence.

Cercosporella asterina Speg. Ashen-brown spots, with darker margins, on leaves of *A. linifolius* in Argentina.

Coleosporium asterum (Diet.) Syd. Yellow rust pustules on leaves of *A. glenni, A. hispidus, A. puniceus, A. scaber, A. tataricus, A. trinervius, Boltonia cantoniensis, B. incisa, B. indica, Callistephus chinensis, A. sinensis,* and *Pinus densiflora* in China, Formosa, and Japan. Reported from [illegible].

Didymaria asteris Oud. Broad, irregular white spots on leaves of *Aster* sp. in Holland.

Entyloma calendulae (Oud.) De By. See Calendula.

Puccinia asteris-alpini Syd. Black rust pustules on small brown sunken spots on leaves of *A. alpinus* in Switzerland.

Ramularia asteris-tripolii Jaap. Subcircular to oblong, often indefinite, yellow, finally gray or brown spots on leaves of *A. tripolium* in Denmark.

Septoria tatarica Syd. Greenish-gray, circular then confluent, leaf spots on *A. tataricum* in Japan.

ASTILBE. Ornamental perennial herbs.
Pucciniostele clarkiana (Barcl.) Diet. Yellow rust pustules on circular or elongate spots, on leaves and petioles of *A. congesta*, *A. philippinensis*, *A. rivularis*, *A. sinensis*, and *A. thunbergii* in India, Japan, and the Philippines.
Pucciniostele mandshurica Diet. Powdery, yellow rust pustules on lower surfaces of leaves and on petioles of *A. chinensis* in Japan, Korea ,and Manchuria.
Septoria hotejae F. Tassi. On leaves of *A. japonica* in Italy.
Triphragmium nishidanum Diet. Chestnut-colored rust pustules on leaves of *A. chinensis* var. *albiflora* and *A. sinensis* in Japan.
ASTRAGALUS. Milkvetch. Hardy herbs or subshrubs.
Cylindrosporium astragali E. Rostr. On leaves of *A. oroboides* in Norway.
Erysiphe taurica Lev. See Althaea.
Euryachora tragacanthae (Lev.) Theiss. and Syd. Black, irregular stromata on thorn and leaves of *A. tragacantha* in Persia.
Microsphaera astragali (DC.) Trev. Powdery mildew on leaves of *A. cicer*, *A. glycyphyllos*, and *A. onobrychis* in Europe.
Mycosphaerella magnusiana Jaap. On leaves of *A. alpinus* in Austria.
Ovularia sphaeroidea Sacc. On leaves of *A. sinicus* in Japan.
Ovularia tuberculiniformis v. Hoeh. Small, often confluent, dirty-yellow leaf spots on *A. cicer* in Yugoslavia and Austria.
Peronospora astragalina Syd. Downy mildew on leaves of *A. alpinus* and *A. oroboides* in Norway, Lapland and Austria.
Phyllachora melaena (Rabh.) Sacc. Black stromata on brown definite leaf spots on *A. glumaceus* in Kurdistan.
Phyllosticta astragalicola Mass. Olivaceous spots, with brown margins, on leaves of *A. glycyphylloides* in Italy.
Phyllosticta desertorum Sacc. Subcircular small brown spots on both surfaces of leaves of *A. alopecurus* in Siberia.
Phyllosticta exscapi Höll. On leaves of *A. exscapus* in Hungary.
Physalospora astragalina (Rehm. Wor. On leaves of *A. cicer* in Russia and Germany.
Physalospora obscura (Juel.) Wor. On leaves of *A. alpinus* and *A. arenarius* in Denmark and Russia.
Placosphaerella tragacanthae Pat. Black, rough, fruiting areas on leaves of *A. fontanesius* and *A. tragacantha* in Persia and Arabia.
Polystigma obscurum Juel. Stromata occupying most of leaf surface, white beneath, yellowish-red, then gray-brown above. On *A. alpinus* and *A. oroboides* in Sweden and Norway.
Septoria astragali Desm. On leaves of *A. alpinus* and *A. glycyphyllos* in Spain, Denmark, Russia, Bohemia, and Austria.
Septoria henningsiana Wint. On leaves of *A. onobrychis* in Asia Minor and Yugoslavia.
Septoria serebrianikowii Sacc. Causes yellowing of leaves of *A. onobrychis* in Russia.
Uromyces carneus (Nees.) Har. Brown, powdery, rust pustules covering entire leaf surfaces of *A. alpinus* and *A. australis* in Norway, Sweden, Switzerland, and Austria.
Uromyces gordianus Bub. Brown rust pustules on leaves of *A. exscapus* in Switzerland, Austria, Hungary and Germany.
Uromyces patagonicus Speg. Cinnamon-brown rust pustules on leaves of *Astragalus* sp. in Patagonia.
Uromyces persicus Syd. Dark-brown rust pustules on leaves of *A. remotijugus* in Persia.
Uromyces splendens Blytt. Yellow to brown rust pustules on leaves of *A. oroboides* in Norway.
ASTRANTIA. Masterwort. Perennial garden plants.
Ascochyta astrantiae Roum. On leaves of *A. major* in France.
Fabraea astrantiae (Ces.) Rehm. On *Astrantia* sp. in Switzerland.
Phyllosticta astrantaecola Gz. Frag. On leaves of *A. major* in Spain.
Pseudopeziza sanicolae-astrantiae Niessl. On leaves of *A. major* in Germany.
Puccinia astrantiae Kalchbr. Dark-brown rust pustules on leaves and petioles of *A. major* and *A. minor* in Portugal, France, Belgium, Austria, Hungary and Germany.
Puccinia astrantiae-vivipari Semad. Rust pustules on leaves of *A. minor* and *Polygonum viviparum* in Switzerland.
Ramularia oreophila Sacc. Angular, dull yellow-brown spots on leaves of *A. major* and *A. minor* in Italy, Spain, Switzerland, Russia and Austria.
ASTROCARYUM. See Palmae.
ASYSTASIA. Hothouse evergreen herbs and shrubs.
Puccinia phaeosticta Pat. and Har. Brown rust pustules on circular brown spots on leaves of *Asystasia* sp. in Indo-China.
Uredo asystasiae P. Henn. Brown rust pustules on yellow spots on leaves of *A. gangetica* in east Africa.
ATALANTIA. Small, usually spiny trees and shrubs related to *Citrus*.
Bacterium citri Hasse. See Citrus.
Phyllosticta disciformis Penz. See Citrus.
ATAMOSCO. See Zephyranthes.
ATRIPLEX. Saltbush. Orach. Ornamental shrubs, garden vegetables and many weedy species.
Ascochyta atriplicis Diet. Subcircular, often confluent, dull-yellow spots, with pale centers and dark margins, on leaves of *A. hastata* in Germany.
Ascochyta chenopodii Rostr. Circular, pale-brown spots, with yellow margins, on leaves of *A. bonushenricus*, *A. littoralis*, *Chenopodium album*, *C. glaucum*, and *Spinacia oleracea* in Denmark China, Russia, and Germany.
Cercospora dubia (Riess.) Wt. On leaves of *A. hastata*, *A. hortensis*, *A. laciniata*, *A. littoralis*, *A. nitens*, and *A. patula* in France, Bohemia, Russia, Denmark, and Germany. Reported from Montana.
Peronospora minor (Casp.) Gäum. Downy mildew on leaves of *A. nitens*, *A. patula* and *A. roseum* in England and north Europe.
Phyllosticta atriplicicola Speg. Circular, ashen-colored spots on leaves of *A. hastata* in Argentina.
Phyllosticta halophila Speg. Circular, often confluent, white spots, with purplish margins, on leaves of *A. hastata* in Argentina.
Ramularia dubia Wint. Spots on leaves of *A. hastata*, *A. nitens* and *A. patula* in Russia and Germany.
Septoria atriplicis (West.) Fckl. Greenish or dirty yellow to whitish leaf spots on *A. patula*, *Chenopodium murale* and *C. vulvaria* in Siberia, Tunis, Bulgaria, France, Spain, Italy, Belgium, Germany, and Central America. Reported from a few localities in the United States.
Uromyces atriplicis McAlp. Pale-brown to dark-brown rust pustules on leaves of *A. semibaccata* in Victoria.

TRIPLEX—Continued.
Urophlyctis pulposa (Wallr.) Schroet. Swellings on stems and leaves of *A. hastata*, *A. patula*, *Beta vulgaris*, *Chenopodium album*, *C. cubicum*, *C. glaucum*, *C. rubrum* and *C. urbicum* in Argentina, Denmark, Siberia, and Germany.
TROPA. BELLADONNA. Medicinal herbs.
Ascochyta atropae Bres. Pale-brown spots with darker margins on leaves of *A. belladonna* in Germany.
Phyllosticta atropae F. Tassi. Circular, white spots, with yellow borders, on leaves of *A. belladonna* in Italy.
Phytophthora erythroseptica Pethyb. See Solanum.
Puccinia atropae Mont. Yellow to black rust pustules on leaves of *A. aristata* in the Canary Islands.
Ramularia atropae Allesch. Irregular, dull-brown spots on both leaf surfaces of *A. belladonna* in Switzerland and Germany.
UCUBA. Ornamental evergreen shrubs, often with variegated leaves, and with bright scarlet fruit.
Ascochyta aucubae Sacc. and Speg. On leaves of *A. japonica* in Italy and France. Var. brunaudiana Sacc. differs in the more definite spots with black margins.
Ascochyta aucubicola Wint. Irregular, whitish spots with fuscous margins on leaves of *A. japonica* in Portugal.
Colletotrichum pollaccii Magn. Anthracnose on *A. japonica* in Japan.
Phyllosticta ampla P. Brun. Large, irregular brownish-green or gray-green spots on leaves of *A. japonica* in France.
Phyllosticta aucubae Sacc. and Speg. On leaves of *A. japonica* in Italy.
Phyllosticta aucubicola Sacc. Pale, indefinite spots on leaves of *A. japonica* in Denmark and Italy.
Phyllosticta indica Roum. and Karst. Large, whitish spots, with dull-brown margins, on leaves of *A. japonica* and *A. lanceolata* in Indo-China.
Pleospora infectoria Fckl. var. **aucubicola** Mont. Black patches appear on tips and along edges of the leaves. These areas increase in size, soon involving the entire blade which withers and dies. New leaves are attacked as they unfold. On *A. japonica* in Italy.
Septoria aucubae West. Large, irregular, pale brown spots with darker margins on leaves of *A. japonica* in Italy and Belgium.
Sphaerulina aucubae Shir. and Har. On leaves of *A. japonica* in Japan.
JRICULA. See Primula.
VENA. OATS. Annual grasses cultivated for grain and forage.
Acremoniella verrucosa Togn. Producing black spots on culms and sheaths of *A. sativa* and *Triticum* sp. in Italy.
Ascochyta graminicola Sacc. var. **ciliolata** Sacc. On *A. filifolia* and *A. pratensis* in Spain.
Cladochytrium graminis Buesgen. See Festuca.
Heterosporium cerealinum Oud. On leaves of *Avena* sp. in Holland and Belgium.
Leptosphaeria nigrans (Desm.) Ces. and De N. See Aira.
Metasphaeria avenae (Auersw.) Sacc. On leaves of *Avena* sp. and *Calamagrostis* sp. in France and Germany.
Ophiobolus cariceti (B. and Br.) Sacc. See Triticum.
Puccinia pratensis Blytt. Powdery, brown pustules on leaves of *A. pratensis* in Sweden and Norway.
Rhizoctonia napi West. See Brassica.
Sclerospora macrospora Sacc. See Triticum.
Septoria planiuscula Diet. Leaf spots on *A. planiuscula* in Germany.
Tylenchus hordei Schoeyen. This nematode is said to cause small galls on the roots of *A. sativa*, *Elymus arenarius*, *Hordeum vulgare* and *Poa pratensis* in northern Europe. Possible should be referred to *Heterodera radicicola*.
Tylenchus tritici Bast. See Triticum.
ERRHOA. Carambola. Tropical fruit trees.
Cercospora averrhoae Petch. Circular, white leaf spots with purple-red margins, on *A. carambola* in Ceylon.
Cercospora averrhoi Welles. Irregular yellow lesions on leaves 3 to 5 millimeters in diameter, which may coalesce to form large irregular spots. Center of diseased areas die, becoming grayish-brown, surrounded by band of yellow tissue. Black lesions form on the fruit. On *A. carambola* in the Philippines. Probably not distinct from the preceding species.
Phyllosticta sp. On leaves of *A. bilimbi* in Cuba.
ALEA. See Rhododendron. The diseases of *Azalea* and *Rhododendron* are interchangeable to such an extent that it does not appear feasible to separate them, just as the host genera themselves are botanically inseparable.
ARA. Small, ornamental evergreen trees or shrubs.
Uredo azarae Neg. Golden-yellow rust pustules on leaves of *A. integrifolia* in Chile.
CKHOUSIA. Evergreen shrubs or trees.
Ascochyta apiospora Cke. and Mass. Brown spots with purple borders on leaves of *Backhousia* sp. and *Myrtus* sp. in Australia.
CTRIS. See Palmae.
HIA. Herbaceous perennials.
Phragmodothis minutissima (Starb.) Theiss. and Syd. On stems of *Bahia* sp. in Brazil.
MBUSA. See Bambuseae.
MBUSEAE. BAMBOO. Large, ornamental, and economic perennial grasses. It has seemed desirable to consider under one heading the diseases of the various genera comprising the tribe *Bambuseae* of the *Gramineae*, not only since the diseases are, to a considerable extent, interchangeable, but because the host plants themselves are so difficult of determination that in many cases disease reports give only the common name bamboo, making exact host determination impossible, and a separation of the diseases, therefore, out of the question.
Aciculosporium take Miy. Produces witches'-brooms of *Phyllostachys* sp. in China and Japan.
Ascochyta arundinariae Gz. Frag. On leaves of *Arundinaria nitida* in Spain.
Ascopolyporus polychrous A. Moell. On living twigs of *Bambusa* sp. in Brazil.
Balansia chusqueicola P. Henn. Black, carbonaceous crusts, about one centimeter long, surrounding stems of *Chusquea* sp. in Costa Rica.
Balansia claviceps Speg. On *Bambusa* sp. in Costa Rica and Brazil.
Balansia regularis Moell. Producing witches'-broom effects on *Bambusa* sp. in Brazil.
Cenangella bambusicola Rick. White, then greenish-yellow, sessile fruiting bodies on branches of *Bambusa* sp. in Brazil.
Chaetophoma pellicula Sacc. and Syd. Black effused areas on leaves of *Chusquea* sp. in Chile.
Coccodiella arundinariae Hara. Fleshy, disk-shaped, scattered fruiting bodies on leaves of *Arundinaria simoni* and *Sasa borealis* in Japan.

BAMBUSEAE—Continued.

Colletotrichum septorioides Sacc. On culms of *Bambusa* sp. in China.

Cylindrosporium bambusae Miy. and Hara. On leaves of *Bambusa* sp. and *Phyllostachys bambusoides* in Japan.

Dothidella gigantochloae (Rehm.) Theiss. and Syd. On stems and leaves of *Gigantochloa* sp., *G. levis*, and *G. scribneriana* in the Philippines. The exact position of this fungus is uncertain.

Endodothella bambusae (Rabh.) Theiss. and Syd. Linear black stromata on rust-brown leaf spots on *Bambusa spinosa* and *Bambusa* sp. in India.

Epichloe bambusae Pat. Fleshy, black, effused (8 to 10 centimeters) stromata on leaves of *Bambusa* sp. and *Sasa spiculosa* in Japan, Java, and India.

Epichloe sasae Hara. Causes witches' brooms on *Sasa spiculosa* in Japan.

Fomes lignosus Klotzsch. See Hevea.

Gilletiella chusqueae (Pat.) Sacc. and Syd. Small, black, circular or elliptical stromata on brown leaf spots on *Chusquea* sp. in Ecuador.

Gloeosporium sphaeosporum Hara. Anthracnose on *Phyllostachys reticulata* in Japan.

Gloniella chusqueae P. Henn. Leaf spot on *Chusquea* sp. in Chile.

Gloniella chusqueicola P. Henn. Black, erumpent fungus pustules on young twigs of *Chusquea* sp. in Chile.

Guignardia bambusae Miy. and Hara. On leaves of *Bambusa* sp. and *Phyllostachys* sp. in Japan.

Guignardia blumeanae (Sacc.) Yates. On leaves of *Bambusa blumeana* and *B. spinosa* in the Philippines.

Helminthosporium bdellomorphum Speg. On culms of *Chusquea valdiviensis* in Chile.

Helminthosporium blumeanum Sacc. On leaves of *Bambusa blumeana* and *B. spinosa* in the Philippines.

Homostegia fusispora Syd. Small, yellow, indefinite spots on leaves of *Bambusa* sp. in the Philippines.

Hypocreopsis phyllostachydis (Syd.) M. and H. In the ovaries of *Phyllostachys pubescula* in Japan.

Kusanobotrys bambusae P. Henn. Round, black, often confluent, spots on upper surfaces of leaves of *Bambusa veitchii* in Japan.

Leptosphaeria schneideriana Rick. Small black spots on leaves of *Bambusa* sp. in Brazil.

Loculistroma bambusae Pat. and Charles. Sessile, dark-green or black fruiting bodies, resembling sclerotia of *Claviceps purpurea*, produced at the nodes. Diseased branches show a witches'-broom effect due to shortening of internodes. The fungus attacks *Phyllostachys* sp. in China.

Malmeomyces pulchellus Starb. On young branches of *Bambusa blumeana* and *B. spinosa* in Brazil and the Philippines.

Mclasmia phyllostachydis Hara. On leaves of *Phyllostachys edulis* and *Phyllostachys* sp. in Japan.

Miyoshia fusispora Kawamura. Elliptical brown spots on stems of *Arundinaria narihira* in Japan.

Mosaic. A typical Mosaic disease has been found on *Phyllostachys* plants imported from China. The disease is related to, and may be identical with, the sugar-cane mosaic.

Mycosphaerella bambusae Pat. On culms of *Phyllostachys reticulata* and *Bambusa* sp. in Japan and Venezuela.

Mycosphaerella bambusicola Miy. and Hara. Circular, elliptical, or irregular dull-brown spots, with black borders, often coalescing and causing death of surrounding areas, on leaves of *Phyllostachys bambusoides* and *P. puberula* in Japan and India.

Mycosphaerella bambusifolia Miy. and Har. Circular to irregular, fuscous, often coalescent, leaf spots on *Phyllostachys bambusoides*, *P. puberula*, and *Phyllostachys* sp. in Japan.

Ophiodothis linearis Rehm. Black stromata formed on lower leaf surfaces which die and split open. On *Chusquea* sp. in Brazil.

Phaiosphaeria bambusae Miy. and Hara. Brown, later grayish, spots along veins of leaves, which are ultimately killed. On *Arundinaria simonii*, *Bambusa* sp. and *Sasa paniculata* in Japan.

Phillipsiella graminicola v. Hoehn. Black stromata on leaves of *Chusquea uettiteanii* in Brazil.

Phyllachora bambusae Syd. and Butl. Circular, black, slightly raised stromata on linear brown leaf spots on *Bambusa spinosa* and *B. blumeana* in the Philippines and Malabar.

Phyllachora bambusina Speg. Black, linear, stromata on leaves of *Bambusa* sp. in Brazil.

Phyllachora caespiticia Theiss. and Syd. Black stromata on upper surfaces of leaves of *Bambusa* sp. in Indo-China.

Phyllachora chusqueae P. Henn. and Lind. Black, linear, cushion-shaped stromata on leaves of *Chusquea quila* in Chile.

Phyllachora eximia Syd. Black convex stromata on sunken yellow or strawberry colored spots on leaves of *Arundinaria alpina* in Tanganyika.

Phyllachora gracilis Speg. Black stromata on lower surfaces of leaves of *Bambusa* sp. in Brazil.

Phyllachora maculans (Karst.) Theiss. and Syd. On leaves of *Bambusa* sp. in Indo-China.

Phyllachora malabarensis Syd. and Butl. Black stromata on yellowish-white spots on upper surfaces of leaves of *Bambusa* sp. in India.

Phyllachora megastroma Pat. On leaves of *Bambusa* sp. in Congo.

Phyllachora orbicula Rehm. Black stromata on small, round, yellowish spots on leaves of *Bambusa blumeana* and *B. spinosa* in China and the Philippines.

Phyllachora phyllostachydis Hara. Black stromata on leaves of *Phyllostachys reticulata* and *P. shiraiana* in Japan.

Phyllachora shiraiana Syd. Oblong to irregular black stromata on upper surfaces of leaves of *Arundinaria japonica*, *A. simonii*, *Bambusa* sp., *Phyllostachys bambusoides*, *Sasa paniculata*, *S. spiculosa*, *Schizostachyum acutiflorum*, and *S. diffusum* in India, the Philippines, and Japan.

Phyllachora sinensis Sacc. On *Bambusa* sp. in China.

Phyllachora tjankorreh Rac. Black circular, slightly convex, stromata on leaves of *Bambusa* sp., *Dinochloa scandens*, *D. tjankorreh*, and *Schizostachyum rotundifolium* in Java and the Philippines.

Phyllosticta phyllostachydis Siem. Leaf spot on *Phyllostachys kumazaca* in southern Russia.

Phyllosticta take Miy. and Hara. On leaves of *Bambusa* sp. and *Phyllostachys bambusoides* in Japan.

Puccinia bambusoides S. and Z. Brown rust pustules on leaves of *Phyllostachys bambusoides* in Japan.

Puccinia corticioides B. and Br. A rust producing yellowish-brown leathery crusts, up to 10 centimeters long, on stems of *Arundinaria hindsii*, *A. japonica*, *A. narihira*, *A. simoni*, and *Phyllostachys bambusoides* in Japan.

Puccinia gracilenta Syd. and Butl. Brown rust pustules on large, dull-brown sunken leaf spots on *Bambusa* sp. in India.

Puccinia ignava Arth. Brown powdery rust pustules on leaves of *Bambusa vulgaris*, *Bambusa* sp., and *Dendrocalamus giganteus* in Trinidad, Porto Rico, and Cuba.

Puccinia kusanoi Diet. Brown to black rust pustules on *Arundinaria fortunei*, *A. japonica*, *A. narihira*, *A. simoni*, *A. variabilia*, *Bambusa veitchii*, *Phyllostachys bambusoides*, *P. nigra*, *P. nigra punctata*, *Sasa nipponica*, and *S. ramosa* in Japan.

BAMBUSEAE—Continued.

Puccinia longicornis Pat. and Har. Yellow-brown to dark-brown rust pustules on leaves of *Arundinaria japonica, A. simoni, Bambusa spinosa, B. tessellata, B. vulgaris, Sasa albo-marginata,* and *S. paniculata* in Japan, Ceylon, China, Indo-China, and the Philippines.

Puccinia melanocephala Syd. Brown to dark-brown rust pustules, covering under surfaces of leaves of *Arundinaria* sp., *Bambusa* sp., and *Phyllostachys* spp. in Japan and India. This rust has been introduced into Florida and Georgia.

Puccinia mitriformis S. Ito. Dark-brown to black rust pustules on leaves of *Sasa paniculata* in Japan.

Puccinia phyllostachydis Kusano. Powdery rust-brown to dark-brown or black rust pustules on leaves of *Phyllostachys aurea, P. bambusoides, P. henonis,* and *P. marliacea* in Japan.

Puccinia sasa Kusano. Powdery rust-brown pustules on leaves of *Sasa borealis* in Japan.

Puccinia xanthosperma Syd. Dark-brown rust pustules on yellow, then gray, sunken leaf spots on *Bambusa* sp. in India and Japan.

Pucciniospora chusqueae Speg. Elliptical dark brown spots, with yellow margins, on leaves of *Chusquea tenuiglumis* in Brazil.

Pycnoderma bambusinum Syd. More or less thickened circular spots on upper surfaces of leaves of *Bambusa vulgaris* and *Schizostachyum* sp. in the Philippines.

Roselliniа rachidis Rehm. On rachides of *Gigantochloa scribneriana* in the Philippines.

Scirrhia bambusae Malusio. (*Melanconium bambusae* Mal.) Brown spots and streaks appear on the branches and twigs and extend rapidly, soon involving the entire area. These spots turn whitish and dry out, finally being covered by the characteristic small black fruiting bodies. On *Bambusa gracilis* and *B. mitis* in Italy.

Septoria bambusae Brun. Pale-brown irregular spots, with broad black margins, on leaves of *Bambusa arundinacea* and *Phyllostachys puberula* in Japan.

Septoria bambusella Speg. Elliptical, indefinite, dark-brown spots on leaves of *Chusquea tenuiglumis* in Brazil.

Shirata bambusicola P. Henn. Fleshy stromata on culms of *Bambusa* sp., *Phyllostachys bambusoides, P. puberula,* and *Sasa spiculosa* in Japan.

Trichonectria bambusicola Rehm. On leaves of *Bambusa blumeana* and *B. spinosa* in the Philippines.

Uredo arundinariae Syd. Brown rust pustules on leaves of *Arundinaria fortunei* and *A. japonica* in Japan and Ceylon.

Uredo bambusarum P. Henn. Powdery brown rust pustules, on round to linear spots, covering both leaf surfaces, of *Bambusa* sp. in Brazil.

Uredo dendrocalami Petch. Leaf rust on *Dendrocalamus strictus* in Ceylon.

Uredo inflexa Ito. Small powdery yellow-brown rust pustules on leaves of *Bambusa* sp. and *Sasa* sp. in Japan.

Uredo ochlandrae Petch. Brown rust pustules on leaves of *Ochlandra stridula* in Ceylon.

Ustilaginoidea phyllostachydis Syd. Black sclerotia formed in place of ovaries of *Phyllostachys bambusoides* in Japan.

Ustilago shiraiana P. Henn. This smut attacks the growing points of young branches and causes a witches'-broom effect. Infected branches are somewhat swollen and their growth stopped, the sori developing beneath the leaf sheaths and bracts, the powdery deep-brown spore masses finally breaking through. The hosts known for this very serious bamboo disease are *Arundinaria simonii, Arundinaria* sp., *Bambusa paniculata, B. veitchii, Phyllostachys bambusoides, P. henonis, P. puberula, P. quilioi, Sasa paniculata,* and *S. ramosa* in Japan and China. The disease has appeared at several points in California and Florida on imported plants but is now thought to have been eradicated.

BANKSIA. SIRMUELLERA Ag. Ornamental Australian evergreen shrubs or trees.

Parodiella banksiae Sacc. and Bizz. Numerous globose black aggregated perithecia on leaves of *B. marginata* in New South Wales.

Phyllosticta banksiae P. Henn. Brown spots, becoming pale, with yellow-brown margins, on leaves of *B. verticillata* in Germany.

BAPHIA. Barwood. Shrubs or small trees.

Uredo baphiae P. Henn. Black powdery rust pustules on leaves of *B. nitida* in central Africa.

Uredo kampuluvensis P. Henn. Powdery brown rust pustules on leaves of *B. cornifolia* and *Combretum baumium* in the Union of South Africa.

BARBAREA. BARBAREA Ag. WINTER CRESS. Yellow-flowered hardy biennials, sometimes called yellow rocket.

Cercospora nasturtii Pass. subsp. **barbareae** Sacc. On leaves of (*Campe barbarea*) *B. vulgaris* in France, Italy, and Russia.

Peronospora barbareae Gäum. Downy mildew on leaves of *Campe stricta* (*B. stricta*) and *C. barbarea* (*B. vulgaris*) in central and north Europe.

Ramularia cochleariae Cke. Circular white spots on leaves of *C. stricta* (*B. stricta*) and *Armoracea rusticana* (*Radicula officinalis*) in Great Britain and Germany.

BARRINGTONIA. Broad-leaved evergreen trees.

Cercospora barringtoniae Syd. Circular yellow to yellow-brown spots on leaves of *B. luzonensis* in the Philippines.

Phyllachora barringtoniae (B. and Br.) Sacc. On *B. speciosa* in Ceylon. A doubtful species.

Phyllosticta microstegia Syd. On leaves of *B. racemosa* in the Philippines.

Physalospora barringtoniae Syd. On *Barringtonia* sp. in the Philippines.

BASELLA. VINE-SPINACH. Annual or biennial tropical pot herbs, sometimes called Malabar nightshade.

Ascochyta basellae P. Henn. Circular dull-brown spots, drying out lighter in color, on leaves of *B. rubra* in Brazil.

Phyllosticta basellae Rangel. Associated with *Stagonospora basellae* Rangel.

Stagonospora basellae Rangel. Circular to elliptical white leaf spots, with dark-purple margins, on *B. rubra* in Brazil.

Uromyces basellae Syd. Yellow to brown rust pustules on leaves of *B. rubra* in the Philippines.

BAUHINIA. Ornamental tropical trees and shrubs.

Cercospora bauhiniae Syd. On leaves of *B. malabarica* in the Philippines.

Cercospora latimaculans Wakef. Circular to irregular, often confluent, pale-brown leaf spots on *B. reticulata* and *Bauhinia* sp. in Gold Coast.

Corticium salmonicolor B. and Br. See Citrus.

Phyllachora bauhiniae (Wint.) Theiss. and Syd. "Tar-spot" disease on leaves of *B. vahlii* in India.

Phyllachora phanerae Racib. Circular black stromata on small yellow-green spots on leaves of *B. aurea* in Java.

Phyllachora tenuis (Berk.) Sacc. Black stromata on upper surfaces of leaves of *B. vahlii* and *Bauhinia* sp. in Mexico, Nicaragua, and Java.

BAUHINIA—Continued.

Phyllosticta bakeri Syd. On leaves of *B. malabarica* in the Philippines.

Phyllosticta bauhiniae Cke. Irregular brown spots on leaves of *Bauhinia* sp. in Venezuela. Var. europaea Allesch. occurs on leaves of *Bauhinia* sp. in Germany.

Phyllosticta bauhiniae-reticulatae P. Henn. Circular to angular light-brown leaf spots on *B. reticulata* in the Union of South Africa.

Phyllosticta bauhinicola P. Henn. Circular dark fuscous spots on leaves of *Bauhinia* sp. in Brazil. Rangel has also described what is apparently the same species as new under the same name.

Phyllosticta candicans Pass. Irregular brown to whitish spots, with red-brown margins, on leaves of *B. aculeata* in Italy.

Phyllosticta juruana P. Henn. Circular red-brown spots, with surrounding yellow zones, on leaves of *Bauhinia* sp. in Brazil.

Phyllosticta mayilae Petch. Irregular red-brown leaf spots on *Bauhinia* sp. in Ceylon.

Phyllosticta missionum Speg. Large definite ashen-colored spots, with narrow purplish borders, on leaves of *Bauhinia* sp. in Argentina.

Phyllostictiella globulifera (Rabh.) F. Tassi. On leaves of *B. vahlii* in India.

Ramularia bauhiniae E. and E. Fruiting as a white powdery mildew on lower surfaces of leaves of *B. divaricata* in Jamaica.

Rhytisma bauhiniae Nees. Black fruiting bodies on leaves of *Bauhinia* sp. in tropical America.

Uredo amazonensis P. Henn. Rust on leaves of *Bauhinia* sp. in Brazil.

Uredo bauhiniicola P. Henn. Brown rust pustules on young twigs and on leaves of *B. heterophylla* and *B. rubiginosa* in Cuba and Brazil.

Uromyces anthemophilus Vestergr. Powdery brown pustules on calyces of *B. longifolia* in Brazil.

Uromyces bauhiniicola Arth. Powdery dark-brown rust pustules on both leaf surfaces of *B. pringlei* and *Bauhinia* sp. in Mexico.

Uromyces congoensis Syd. Powdery dark-brown rust pustules on leaves of *Bauhinia* sp. in the Congo.

Uromyces dietelianus Pazschke. Powdery brown rust pustules on leaves of *Bauhinia* sp. in Brazil.

Uromyces flebrigii P. Henn. and Vestergr. Dark-brown rust pustules on leaves of *Bauhinia* sp. in Paraguay.

Uromyces floralis Vestergr. Powdery chestnut-brown rust pustules on leaves, flowers, calyces, and pedicels of *B. cuyabensis*, *B. hiemalis*, and *B. holophylla* in Brazil.

Uromyces foveolatus Juel. Chestnut-brown to black rust pustules on leaves of *Bauhinia* sp. in Brazil.

Uromyces goyazensis P. Henn. Powdery dull-brown rust pustules on branches and flowers of *Bauhinia* sp. in Brazil.

Uromyces guatemalensis Vestergr. Powdery dark-brown rust pustules on leaves of *B. inermis* and *Bauhinia* sp. in Guatemala and Costa Rica.

Uromyces hemmendorffii Vestergr. Powdery yellow-brown to chestnut-brown rust pustules on leaves of *B. forficata* in Brazil.

Uromyces imperfectus Arth. (*U. bauhiniae* [B. and C.] Vestergr. Brown rust pustules on leaves of *Bauhinia* sp. in Nicaragua and Jamaica.

Uromyces jamaicensis Vestergr. Powdery chestnut-brown rust pustules on leaves of *B. divaricata*, *B. pauletia*, and *B. porrecta* in Porto Rico, Cuba, Jamaica, Trinidad, and Mexico.

Uromyces pannosus Vestergr. Yellow-brown powdery rust pustules on leaves of *Bauhinia* sp. in Brazil.

Uromyces paraffinis Diet. Powdery chestnut-brown rust pustules on leaves of *Bauhinia* sp. in Brazil.

Uromyces perlebiae Vestergr. Powdery brown to dark brown rust pustules on leaves of *B. pentandra* in Brazil.

Uromyces praetextus Vestergr. Rust on leaves of *B. bongardi*, *B. cuyabensis*, and *B. hiemalis* in Brazil.

Uromyces postulatus Wakef. Leaf rust on *B. fassoglensis* in tropical Africa.

Uromyces regius Vestergr. Brown powdery rust pustules on leaves of *B. candicans* in Brazil.

Uromyces superfixus Vestergr. Rust on leaves of *B. mollis* in Argentina and Bolivia.

Uromyces vestergreni Syd. Ferruginous to dark-brown rust pustules on leaves of *B. tomentosa* in Ceylon and India.

BEGONIA. Succulent herbs grown mostly as potted plants for both flowers and variegated foliage.

Aphelenchus olesistus Ritz. Bos. (*A. ormerodis* Ritz. Bos.) This nematode or eel-worm forms brown streaks or patches on the leaves of *Acrostichum flagelliferum*, *Adiantum capillus-veneris*, *Anemone japonica*, *A. sylvestris*, *Asplenium* spp., *Atragena alpina*, *Begonia* spp., *Blechnum brasiliense*, *Calceolaria* sp., *Chrysanthemum indicum*, *Coleus* sp., *Crassula* sp., *Cypripedium* sp., *Cystopteris fragilis*, *Epipactis palustris*, *Erygium alpinum*, *Ficus* spp., *Fragaria* sp., *Gloxinia* sp., *Gymnogramme calomelanos*, *Hepatica triloba*, *Heuchera sanguinea*, *Lomaria* sp., *Pteris* spp., *Ranunculus* spp., *Saintpaulia ionanthe*, *Salvia* sp., *Scabiosa* sp., *Spiraea astilboides*, and other ornamentals, and on the fronds of various species of cultivated ferns. The disease is reported from England and Holland. It occurs in greenhouses in the United States and out of doors in the South to some extent. Further importations would be most undesirable.

Coleosporium begoniae Arth. Yellow powdery rust pustules on the lower surfaces of leaves of *Begonia* spp. in Mexico and Italy.

Gloeosporium begoniae Magnaghi. Produces reddish-brown spots on leaves of *Begonia* spp. in Italy.

Mycosphaerella begoniae Pat. Causes spots on the lower surfaces of leaves of *Begonia* spp. in Ecuador.

Myxosporium sordidum F. Tassi. On *B. argyrostigma* in South America and Europe.

Phyllachora begoniae Pat. Produces black, shiny, more or less irregular spots on the upper surfaces of the leaves of *Begonia* spp. in Ecuador.

Phyllosticta begoniae Brun. Circular light olive-colored leaf spots on *B. credneri*, *B. metallica*, and *B. tuberosa* in Italy, France, and Portugal.

Phyllosticta begoniae Rangel. Reported from Brazil as the cause of a leaf spot of cultivated *Begonias*. May be the same species as the preceding but, if not, should be renamed.

Puccinia granularis Kalchbr. & Cke. See Pelargonium.

BELAMACANDA. BLACKBERRY LILY. Hardy herbaceous perennials, sometimes called leopard flower.

Puccinia belamacandae (P. Henn.) Diet. Powdery brown to black rust pustules on brown spots with red-brown margins, on leaves of *B. chinensis* and *B. punctata* in Japan.

Uredo belamacandae P. Henn. Brown rust pustules on leaves of *B. chinensis* in India.

BELIS. See Cunninghamia.

BELLEVALIA. Bulbous plants. Now referred to *Hyacinthus* (q. v.).

Septoria bellevaliae Pat. Produces elongate (2 to 4 cm.) white spots with red margins on leaves of *B. dubia* in Algeria.

BELLIDIASTRUM. Herbaceous perennials.
Entyloma bellidiastri Maire. Circular, whitish spots, turning brown, on leaves of *B. michelii* in Tyrol.
Entyloma calendulae (Oud.) De By. See Calendula.
Puccinia firma Diet. Brown rust pustules on leaves of *B. michelii* and *Carex firma* in Tyrol and Germany.
Septoria bellidiastri Allesch. On leaves of *B. michelii* in Bavaria.

BELLIS. ENGLISH DAISY. Low perennial herbs.
Entyloma bellidis Krieger. Circular white or yellowish spots, which are often confluent so as to occupy the entire area of leaf blades of *B. perennis* in Dalmatia, Denmark, and Germany.
Puccinia distincta McAlp. Orange-yellow and brown rust pustules on leaves of *B. perennis* in Australia and Tasmania.
Ramularia bellidis Sacc. Subcircular dull yellow spots on leaves of *B. perennis* in Italy.
Septoria bellidicola Rob. & Desm. White spots with red margins on leaves of *B. perennis* in Dalmatia and Italy.

BERBERIS. (Including *Mahonia*, Oregon grape, holly grape.) BARBERRY. Deciduous or evergreen shrubs cultivated for their ornamental leaves, flowers, and fruits.
Aecidium aridum Diet. and Neg. Rust on leaves of *B. buxifolia* and *B. heterophylla* in Chile.
Aecidium berberis-ruscifolia P. Henn. Yellow rust pustules covering the under sides of leaves of *B. ruscifolia* in Argentina.
Aecidium berberidis-thunbergii P. Henn. Yellow rust pustules on round red spots on under surfaces of leaves of *B. thunbergii* in Japan.
Aecidium hausskneckianum P. Henn. Golden-yellow rust pustules on leaves, petioles, and fruits of *B. crataegina* in Persia.
Aecidium levilleanum P. Magn. Rust on leaves of *B. buxifolia* in Chile.
Aecidium montanum Butl. Rust pustules on red leaf spots on *B. aristata*, *B. coriaria*, and *B. lycium* in India.
Aecidium tubiforme Diet. and Neg. Rust on leaves of *B. buxifolia* in Chile.
Ascochyta australis Speg. Circular to irregular gray-brown spots, with yellow margins on leaves of *B. glauca* in Argentina.
Ascochyta berberidina Sacc. On branches of *B. vulgaris* in France and Russia.
Dictyodothis berberidis (Rehm.) Theiss. and Syd. On branches of *B. buxifolia* in Chile.
Didymosphaeria epidermidis (Fr.) Fckl. var. **macrospora** Elias. On branches of *B. vulgaris* in Sweden.
Dothichiza carneofusca v. Hoeh. On branches of *B. vulgaris* in Austria.
Gambleola cornuta Mass. On leaves of *B. nepalensis* in India.
Gloeosporium japonicum Hemmi. Anthracnose on *Mahonia japonica* in Japan.
Heterosporium berberidis Ranoj. On branches of *B. vulgaris* in Serbia.
Laestadia berberidis Delacr. On branches of *B. vulgaris* in France.
Melasmia berberidis Thuem and Wint. Small brown spots on leaves of *B. vulgaris* in Austria and Germany.
Microsphaera berberidis (DC.) Lév. Powdery mildew on leaves of *B. aquifolium* and *B. vulgaris* in Europe, Cyprus, Transcaucasia, Turkestan, and Japan.
Mycosphaerella australis (Speg.) Lind. On leaves of *B. ilicifolia* in Chile.
Mycosphaerella berberidis (Auersw.) Lind. On leaves of *B. vulgaris* in Belgium and Switzerland.
Phoma berberidicola Vestergr. On branches of *B. vulgaris* in Sweden and Switzerland.
Phragmodothis berberidis (Alm. and Cam.) Theiss. and Syd. On branches of *B. vulgaris* in Portugal.
Phyllosticta aquifolii Allesch. On leaves of *Mahonia japonica* in Denmark.
Phyllosticta asiatica Cke. Circular to irregular dull-brown spots, with dark, purplish-brown margins, on leaves of *B. asiatica* in Great Britain.
Phyllosticta berberidicola Speg. Spots on leaves of *B. laurinea* in Uruguay.
Phyllosticta berberidis Rbh. Irregular gray spots, becoming whitish, on leaves of *B. neubertii* and *B. vulgaris* in France, Italy, Denmark, Russia, Austria, and Germany.
Phyllosticta mahoniae (Thuem.) Keissl. On leaves of *Mahonia aquifolium* in Italy, France, Russia, and Denmark.
Phyllosticta mahoniaecola Pass. Large brown indefinite spots on leaves of *Mahonia aquifolium*, *M. beali*, and *M. japonica* in Italy, France, and Great Britain. Var. *aquifolii* P. Brun. is the same as the species, except that the leaf spots have definite brown margins.
Phyllosticta spegazziniana Keissl. On leaves of *Mahonia aquifolium* in Argentina.
Phyllosticta westendorpii Thuem. Angular white spots, with red margins, on leaves of *B. altaica* and *B. vulgaris* in Yugoslavia, Siberia, Belgium, and Germany.
Puccinia antartica Speg. Dark-brown rust pustules on leaves of *B. buxifolia* (*B. dulcis*) in Patagonia.
Puccinia arrhenatheri (Kleb.) Eriks. See Arrhenatherum.
Puccinia barri-aranae Diet. and Neg. Chestnut-colored rust pustules on leaves of *B. buxifolia* in Chile.
Puccinia berberidis Mont. Yellow to yellow-brown rust pustules on circular or irregular leaf spots on *B. crassifolia*, *B. darwinii* *B. empetrifolia*, *B. glauca*, *B. heteropoda*, and *B. spinulosa* in Chile.
Puccinia berberidis-trifoliae Diet. and Holw. Black, powdery, rust pustules on small brown sunken spots on leaves and petioles of *B. trifolia* in Mexico.
Puccinia droogensis Butl. Rust on leaves of *B. aristata* in Ceylon and India.
Puccinia meyeri-alberti P. Magn. Brown rust pustules on circular leaf spots on *B. buxifolia*, *B. congestifolia*, *B. darwini*, *B. linearifolia*, and *B. pearcei* in Chile.
Puccinia naumanniana (P. Magn.) Diet. Black powdery rust pustules on leaves of *B. buxifolia* in Chile.
Puccinia stolpiana (P. Magn.) Diet. and Neg. Yellow to black powdery pustules on leaves of *B. buxifolia* and *B. ilicifolia* in Chile.
Septoria berberidis Niessl. Subcircular dull-brown spots, with dark purple margins on leaves of *B. vulgaris* in Yugoslavia, Russia, Italy, Switzerland, and Austria.
Septoria mahoniae Passer. Small brown spots on leaves of *Mahonia aquifolium* in Russia, Italy, and Denmark.
Uropyxis quitensis Lagh. Rust on leaves of *Berberis* sp. in Ecuador.

BETA. BEET. Sugar beet. Cultivated for thick edible roots, edible leaves, and for sugar production.
Actinomyces spp. Several species of *Actinomyces*, including *A. albus* (R. D.) Gasp., *A. intermedius* (Krug.) Wr., and *A. xanthostroma* Wr., said to cause scab of beet roots (*B. vulgaris*) have been reported from Europe. Their relation to *A. scabies* is uncertain.
Aphanomyces laevis de By. Causes a soft rot of sugar beet (*B. vulgaris*) roots in Europe.
Ascochyta betae Prill. and Delacr. On petioles of *B. vulgaris* in France.

BETA—Continued.

Ascochyta beticola Prill. and Delacr. On petioles of *B. vulgaris* in France. Probably not distinct from above species.

Bacillus spp. Bacteriosis has been reported from a number of countries, particularly in Europe, as a serious disease of the beet (*B. vulgaris*) under various names, including *B. betae* Mig., *B. bussei* Mig., *B. lacerans* Mig., *B. mycoides* Mig., and *B. tabificans* Delacr. The status of these species and their relation to *B. carotovorus* is most uncertain.

Bacillus sp. Bacterial scab of *B. vulgaris* in Korea.

Entyloma betiphilum Bub. Leaf smut on *B. vulgaris* in Austria. A doubtful species.

Helicobasidium mompa Tan. See Morus.

Leptosphaeria circinans (Fckl.) Sacc. See Asparagus.

Monilíopsis aderholdi Ruhl. See Solanum.

Peronospora schachtii Fckl. The downy mildew of beet (*B. maritima* and *B. vulgaris*) is serious in Europe, Egypt, Japan, and Argentina. The disease occurs to a limited extent in New York, Minnesota, and California. Delicate gray patches of mildew appear on lower leaf surfaces. Young central leaves are most frequently attacked and the growth of the plants checked. Seedlings may be killed outright.

Pionnotes betae Sacc. Yellow spots coalescing to form crustlike areas and cankers of roots of *B. vulgaris* in Great Britain.

Pleospora putrefaciens (Fckl.) Frank. Causes a serious disease of beets (*B. vulgaris*) in Germany.

Ramularia betae Rostr. Numerous subcircular grayish spots with reddish margins on both surfaces of leaves of *B. trigyna* and *B. vulgaris* in Bulgaria, Belgium, Denmark, Holland, and Russia.

Rhizoctonia napi West. See Brassica.

Septoria betae Westd. Pale-brown spots with white centers and dark-brown margins, on leaves of *B. vulgaris* in Australia and Belgium. Reported from Indiana.

Sorolpidium betae Nemec. On roots of *B. vulgaris* in Europe.

Typhula betae Rostr. Attacks seedlings of *B. vulgaris* in Sweden, Denmark, Holland, Great Britain, and the Azores and is often destructive.

Uredo marmoxiae Speg. Rust on leaves and stems of *B. procumbens* in the Canary Islands.

Uromyces betae (Pers.) Lév. Yellow to brown rust pustules on leaves of *B. cicla*, *B. maritima*, and *B. vulgaris* in Argentina, Uruguay, Union of South Africa, Australia, New Zealand, and Europe. Found sparingly in California and Colorado.

Urophlyctic leproides (Trab.) P. Magn. Forms nodular outgrowths from the upper portion of the roots, which often become as large as walnuts. These outgrowths are modified roots and remain attached by narrow bases. On *B. vulgaris* in New Zealand, Algeria, Argentina, Great Britain, France, Belgium, and Sweden. Occurs scatteringly in California and has been found in Iowa.

Urophlyctis pulposa (Walbr.) Schroet. See Atriplex.

A disease characterized by orange-colored spots, irregular swellings, and distortion of the foliage of beet has been reported from northern France, the cause being unknown.

BETULA. BIRCH. Forest and shade trees with handsome green foliage and ornamental bark.

Didymosphaeria latebrosa Mont. On leaves of *B. alba* in Belgium.

Exoascus alpinus (Johans.) Sacc. On leaves and branches of *B. nana* in Scandinavia.

Exoascus betulae Fckl. Fruiting areas on lower leaf surfaces of *B. alba*, *B. odorata*, *B. pubescens* and *B. verrucosa* (*B. pendula*) in middle Europe.

Exoascus betulinus (Rostr.) Sadeb. Produces witches'-brooms on *B. alba*, *B. odorata* and *B. pubescens* in north and middle Europe. Reported from Wisconsin.

Exoascus janus Thomas. Large, circular, pale rose-colored spots on both leaf surfaces of *B. verrucosa* in Switzerland and Germany.

Exoascus nanus (Johan.) Sacc. Produces witches'-brooms and yellow-green leaf spots on *B. nana* and *B. odorata* in Norway and Sweden.

Exoascus turgidus Sadeb. On leaves of *B. alba*, *B. odorata*, *B. pubescens*, and *B. verrucosa* in Finland, Russia, Sweden, Denmark, Switzerland, Great Britain, Austria, and Germany.

Guignardia betulae (Auersw.) Sacc. and Trott. On leaves of *B. verrucosa* in Denmark and Germany.

Macrophoma sydowiana (Bres.) Sacc. and Syd. On leaves of *B. alba* in Germany.

Marsonia betulae (Lib.) Sacc. Irregular, radiate, dull-brown spots on leaves of *B. alba* and *B. verrucosa* in Europe.

Myxosporium devastans Rostr. Causes withering and die-black of young twigs of *B. alba*, *B. verrucosa*, and *Acer pseudoplatanus* in Denmark.

Phyllosticta betulae Oud. On leaves of *B. alba* in Holland.

Phyllosticta betulina Sacc. On leaves of *B. alba* in Italy and France. Reported from New York.

Plowrightia virgultorum Sacc. Black knot of birch. Shoots and branches from 1 to 4 years old are attacked, narrow elongated stromata forming, which are olive to black in color and carbonaceous in texture. Leaves on infected branches wilt and die and the twigs die back. A witches'-broom effect is produced finally. On *B. alba*, *B. nana*, *B. pubescens*, and *B. verrucosa* in Great Britain, Sweden, Finland Switzerland, Russia, Denmark, and Germany. Theissen and Sydow delete this species.

Rhytisma nervale (Alb. and Schw.) Rehm. See Alnus.

Sclerotinia betulae Wor. Attacks the catkins of *B. alba*, *B. papyrifera*, and *B. verrucosa* in Japan, Russia, and Denmark.

Septoria betulina Pass. Irregular, often confluent, gray spots on leaves of *B. alba* and *B. pubescens* in Russia, Denmark, Tyrol, and Italy. Reported from Wisconsin.

Taphrina aurea (Pers.) Fr. Attacks seedlings of *Betula* sp. in Great Britain.

BIGNONIA. TRUMPET CREEPER. Woody climbers.

Ascochyta tweediana Penz. and Sacc. On capsules of *B. tweediana* in Italy.

Cercospora bignoniaecola Speg. Irregular, often confluent, gray spots on leaves of *Bignonia* sp. in Brazil.

Cercosporella unguis-cati Speg. Subcircular dark-purple spots on both leaf surfaces of *B. unguis-cati* (*Doxantha unguis-cati*) in Argentina.

Colletotrichum bignoniae-igneae Rangel. Anthracnose on leaves of *Bignonia* sp. in Brazil.

Phyllachora amphigena Speg. (*P. nitidula* Pat. and Gaill.) Black stromata on pale brown spots on leaves of *Bignonia* sp. and *Clytostoma callistegioides* in Venezuela, Paraguay and Brazil.

Phyllachora nitidula Pat. Black stromata on leaves of *Bignonia* sp. in Venezuela. A doubtful species.

Phyllachora tenuis Speg. Tar-spot on leaves of *Bignonia* sp. in Argentina. This species should be renamed, since *P. tenuis* (B. and C.) Sacc. has priority.

Phyllosticta tweediana Penz. and Sacc. On capsules of *B. tweediana* in Italy.

Pleospora briosiana Luigi. Large hazel-colored blotches, with black borders, on leaves of *B. buccinatoria* (*Phaedranthus buccinatorius*) in Italy.

Puccinia appendiculatoides P. Henn. Yellow rust pustules on round or effuse circular leaf spots on leaves of *Bignonia* sp. in Brazil.

BIGNONIA—Continued.

Puccinia bignoniacearum Speg. Brown rust pustules on leaves of *Bignonia* sp. in Brazil.

Uredo cuticulosa E. and E. Brown rust pustules on leaves of *Bignonia* sp. in Nicaragua.

Uropyxis ricktana P. Magn. Irregular, woody galls, on which brown rust pustules occur on trunks of *Bignonia* sp. in Brazil.

BIHAI. See Heliconia.

BIKUKULLA. See Dicentra.

BISCHOFIA. Ornamental tropical trees.

Phyllachora bischofiae Syd. Irregular, black, shining stromata on leaves of B. javanica (*B. trifoliata*) in India.

BIXA. ANATTO. Ornamental tropical trees. Red coloring matter produced from the pulp surrounding the seeds.

Cercospora bixae Allesch. Large, irregular, brown spots, with surrounding yellow zones, on leaves of *B. orellana* in Brazil.

Ovularia bixae Rac. On leaves of *B. orellana* in Java and Ceylon.

Phyllosticta bixina Young. Subcircular to irregular pale yellow spots, surrounded by purplish-black borders, on leaves of *B. orellana* in Porto Rico.

Rhizoctonia lamellifera Small. See Grevillea.

Uredo bixae Arth. Brown powdery rust pustules on leaves of *B. orellana* in Porto Rico.

BLECHNUM. Ferns.

Aphelenchus olesistus Ritz. Bos. See Begonia.

Milesina blechni Syd. Brown rust pustules on leaves of *B. occidentale*, *B. spicant*, and *Lygodium polymorphum* in Colombia, Trinidad, Great Britain, Denmark, France, Spain, Switzerland, Austria, and Germany.

Polystomella pulchella (Speg.) Theiss. See Alsophila.

Uredinopsis mayoriana Diet. Rust on leaves of *B. blechnoides* in Colombia.

Uredo blechnicola P. Henn. Powdery yellow rust pustules on leaves of *B. volubile* in Brazil.

Uredo orientalis Racib. Brown, erumpent, rust pustules deforming the leaves of *B. orientale* in Java.

BLETIA. Terrestrial orchids. See Orchidaceae.

BLUMENBACHIA. SALOA Ag. STING LILY. Ornamental annuals.

Septoria blumenbachiae Speg. Indefinite light-brown spots on leaves of *B. urens* in Argentina.

BOCCONIA. PLUME POPPY. Tall garden herbs.

Puccinia bocconiae Mayor. Rust on leaf blades and petioles of *B. frutescens* in Colombia.

BOEHMERIA. Ramie. Herbs, shrubs, or trees. Tropical fiber and ornamental plants.

Cercospora boehmeriana Wor. On leaves of *B. nivea* in Russia.

Colletotrichum boehmeriae K. Saw. Scattered ashen-brown circular spots on leaves and fusiform cankers on stems of *B. nivea* in Japan and Formosa.

Puccinia boehmeriae P. Henn. Yellow-brown rust pustules on leaves of *Boehmeria* sp. in Brazil.

Puccinastrum boehmeriae Syd. Yellow-brown rust pustules on leaves of *B. biloba*, *B. grandiflora*, *B. japonica*, *B. longifolia*, *B. sieboldiana*, *B. spicata*, and *B. tricuspis* in Japan and the Philippines.

Ramularia boehmeriae Fuji. Causes a root and rhizome rot of *B. nivea* in Japan.

Septoria boerhaviae Pat. On leaves of *B. verticillata* in Abyssinia.

Uredo boehmeriae Diet. Rust on leaves of *B. platyphylla* in Ceylon.

BOLTONIA. Asterlike herbs.

Coleosporium asterum (Diet.) Syd. See Aster.

BOMAREA. Twining, herbaceous plants of the *Amaryllidaceae*.

Aecidium bomareae Mayor. Yellow rust pustules on leaves and stems of *B. caldasiana* and *B. potaocensis* in Colombia, South America.

Heterosporium alliI-bomareae Pat. On leaves of *Bomarea* sp. in Ecuador.

Puccinia bomareae P. Henn. (*Uredo bomareae* Lagerh.) This rust produces elongated lemon-yellow pustules, which later become dark-brown, on lower surfaces of leaves of *B. acutifolia*, *B. edulis*, *B. ovata*, and other species in Ecuador, Mexico, and Brazil.

Puccinia pallor Arth. and Holw. Yellow to brown powdery rust pustules on lower surfaces of leaves of *B. acutifolia* in Costa Rica and Guatemala.

Urocystis bomareae Diet. and Neg. Black powdery spore masses form in swellings on the stems of *B. salsilla* in Chile.

Uromyces bomareae P. Henn. Bright yellow, then brown, rust pustules on the lower surfaces of the leaves of *Bomarea* sp. in Brazil.

BOMBAX. Tropical shrubs and trees, supplying a useful floss from the cottony contents of the pods. Sometimes known as silk cotton tree.

Chrysomyxa bombacis Petch. Rust on leaves of *B. malabaricum* in Ceylon.

Cladotrichum follicola (Niessl.) Ferro. Effuse black areas on leaves of *B. malabaricum* in India.

Fomes lignosus Klotzsch. See Hevea.

Gloeosporium bombacis Putte. Irregular, then confluent, dull-brown areas on leaves of *B. insignis* in Brazil.

Puccinia bombacis Diet. Brown rust pustules on leaves of *Bombax* sp. in Colombia.

Uredo bombacis Petch. Rust on leaves of *B. malabaricum* in Ceylon.

BORAGO. BORAGE. Coarse, annual herbs, sometimes cultivated for culinary purposes.

Cercospora sp. Leaf spot on *B. officinalis* in Cuba.

Cylindrosporium myosotidis Sacc. See Myosotis.

Entyloma serotinum Schroet. Smut sori in numerous white, then brown, circular leaf spots on *B. officinalis*, *Pulmonaria officinalis*, *Symphytum officinalis*, and *S. tuberosum* in Denmark, France, Austria, and Germany. Ciferri has described the form on *Borago* as *E. borraginis* Cif.

BORASSUS. Palmyra palm. See Palmae.

BORONIA. Ornamental shrubs.

Puccinia boroniae P. Henn. Dark cinnamon-colored rust pustules on branches of *B. spinescens* in Australia.

BOTOR. See Psophocarpus.

BOUGAINVILLEA. BUGINVILLEA Ag. Tropical woody climbers with brilliant colored bracts.

Puccinia bougainvilleae (Speg.) Schroet. Yellow to dark-brown rust pustules, on circular yellow spots, on leaves and branches of *B. frondosa* and *B. stipitata* in Argentina.

BOUSSINGAULTIA. Madeira vine. Herbaceous perennial vines.

Cercospora boussingaultiae Roum. On leaves of *B. baselloides* in France.

Phyllosticta boussingaultiae Speg. Small whitish spots, with purple borders, on leaves of *B. baselloides* in Argentina.

BOUVARDIA. Small flowering shrubs.

Uromyces bouvardiae Syd. Yellow and brown to black rust pustules on leaves of *B. hirtella*, *B. leiantha*, *B. versicolor* and *Bouvardia* sp. in Mexico and Guatemala.

BRACHYCHITON. Bottle tree. Australian trees.
Phyllosticta sterculiae brachychiti Wint. On leaves of *B. diversifolium* (*B. populneum*) in Portug
Septoria ochracea-maculans Theum. Irregular, dull yellow spots, with narrow dark purp borders, on leaves of *B. diversifolium* (*B. populneum*) in Portugal.
BRACHYCOME. Swan River daisy. Australian herbs.
Puccinia brachycomes McAlp. Yellow and black rust pustules on swollen and distorted portio of leaves, and on stems and branches of *B. ciliaris*, *B. diversifolia*, *B. pachyptera* and *B. scapiform* in Australia.
BRASSAVOLA. Epiphytic orchids. See Orchidaceae.
BRASSICA. Cabbage. Mustard. Turnip. Rutabaga. Cauliflower. Kale. Kohlrabi. Brusse sprouts. Annual and perennial herbs.
Ascochyta brassicae Thuem. Large, irregular, indefinite, yellow-gray spots on leaves of *B. olerac capitata* and other varieties in Europe.
Bacillus brassicaevorus Del. Bacteriosis of *B. oleracea capitata* and *botrytis* in France. Probab not distinct from *B. carotovorus*.
Bacillus sp. (?) Bacterial leaf spot of *B. oleracea capitata* and *B. rapa* in Guam.
Cercospora brassicae-campestris Rangel. On leaves of *B. campestris* in Brazil.
Cercospora brassicicola P. Henn. Circular, numerous pale spots, with dull-brown surroundi zones, on leaves of *B. chinensis* and *B. pekinensis* in Japan and the Philippines.
Colletotrichum brassicae Schulz. and Sacc. Anthracnose on stems of *B. oleracea* in Yugoslavia.
Cylindrosporium brassicae Fautr. and Roum. Numerous, large, irregular, dirty white spots leaves of *B. campestris* and *B. napus* in Yugoslavia and France. Reported from Missouri an Georgia.
Gloeosporium concentricum (Grev.) B. and Br. Circular bleached spots on leaves of *B. napu B. oleracea* and *B. rapa* in Japan, Great Britain, Denmark, and Germany.
Moniliopsis aderholdi Ruhl. See Solanum.
Mycosphaerella brassicicola (Duby.) Lind. (*Phyllosticta brassicae* [Curr.] West.) The ring-spo disease of *B. oleracea* var. *botrytis*, *gemmifera*, and *capitata* occurs in Europe, Australia, New Zealan Argentina, Uruguay, and California. Numerous definite, circular, light brown to gray spots occ on the leaves, surrounded by olive-green or blue-green borders. Affected leaves turn yellow. T disease develops rapidly after harvesting and is often serious enough to cause heavy losses in ma kutting.
Olpidiaster radicis (De Willd.) Pascher. See Linum.
Olpidium brassicae Wor. Attacks the roots of seedlings of *B. oleracea* var. *capitata* and *Brass* spp., causing a "damping off," in Russia, Finland, Sweden, and Belgium. Reported from Wiscons
Olpidium radicicolum De Wild. On roots of *B. oleracea* and *Bursa bursapastoris* in Russia a Belgium.
Ovularia brassicae Bres. and Allesch. Subcircular or irregular, often confluent, white spots leaves of *B. napus* and *B. oleracea* in Germany.
Phoma napa-brassicae Rostr. Causes a dry rot of roots of *B. napa* and *B. oleracea* in New Zealan Great Britain, Denmark, and Holland. Reported from Canada.
Phyllosticta brassicina Sacc. Circular to angular, dull, greenish-gray spots on leaves of *B. olerac* in Italy and Malta.
Phyllosticta napi Sacc. Indefinite spots on leaves of *B. napa* and *B. oleracea* in France and Ital
Pseudomonas (**Bacterium**) **destructans** Potter. Causes a white rot of *B. napus* and *B. olerac* in Great Britain and *Raphanus sativus* in Japan. Probably not distinct from *B. carotovorus* Jon
Ramularia rapae Pim. Irregular spots on leaves of *B. napa* in Great Britain.
Rhizoctonia napi West. Covers stems, pods, leaves, and roots with white mycelium in whi sclerotia develop, white at first, turning black on the outside. Causes a dry rot of infected are seriously diseased plants breaking over at the ground level. The recognized hosts are *Amaranth tristis*, *Argemone mexicana*, *Avena sativa*, *Beta bengalensis*, *Brassica campestris*, *Calamintha*, *Cannat sativa*, *Chenopodium album*, *Cicer arietinum*, *Cnicus arvensis*, *Fumaria parriflora*, *Hordeum vulga Lathyrus sativus*, *Lens esculenta*, *Leucas* sp., *Linum usitatissimum*, *Medicago lupulina*, *Pisum sativu Scoparia dulcis*, *Triticum vulgare*, and *Vicia hirsuta*. Shaw states that this species should be tra ferred to *Botrytis*. Other workers consider it synonymous with *Sclerotinia sclerotiorum* Mass.
Sporidesmium brassicae Mass. Indefinite olive-gray or green spots, on leaves and pods of *campestris* in India and China.
Sporidesmium exitiosum Kuehn. On stems and pods of *B. napa*, *B. oleracea*, *B. rapa*, and *arvensis* in Japan, Sweden, Denmark, and Germany. Also reported from Canada. *Leptosphae napi* (Fckl.) Sacc. is said to be the perfect stage of this species.
Urocystis corallioides Rostr. Affected plants are stunted and galls up to one and one-half inch in diameter form on the roots. On *Brassica* sp. (mustard) in India.
Uromyces brassicae Niessl. On *B. oleracea* in France. A very doubtful species.
BRICKELLIA. COLEOSANTHUS Ag. Herbs or small shrubs.
Puccinia decora Diet. Dull-brown rust pustules on leaves of *Brickellia* sp. in Mexico.
Puccinia praemorsa Diet. and Holw. Rust on leaves of *B. veronicaefolia* in Mexico.
Pucciniosira brickelliae Diet. and Holw. Brown rust pustules on leaf blades and petioles a stems of *B. adenocarpa*, *B. cavanillesii*, *B. secundiflora*, and *Coleosanthus canavillesius* in Mexi and Guatemala.
BRIZA. Quaking grass. Annual or perennial grasses.
Dilophia graminis (Fckl.) Sacc. See Triticum.
Septoria cripiniana Gz. Frag. On leaves of *B. maxima* in Spain.
Tilletia brizae Ule. Brown striations on leaves which finally rupture exposing powdery black mass of smut spores. On *B. media* in Germany.
BROMELIA. Fleshy leafed Bromeliads.
Perisporium bromeliae Stevens. Forms smoky patches on leaves of *B. pinguin* in Porto Rico.
Phyllosticta bromeliae Alm. and Cam. Whitish spots on leaves of *B. acanga* in Portugal.
BROMUS. Bromegrass.
Exobasidium graminicolum Bres. See Arrhenatherum.
Helminthosporium fragosi Bub. On leaves of *B. sterilis* in Spain.
Hypochnus fuciformis (Berk.) McAlp. See Lolium.
Leptosphaeria culmicola (Fr.) Karst. On culms of *B. erectus*, *Festuca arundinacea*, *F. sylvati Phalaris arundinacea*, *Secale cereale*, and *Triticum sativum* in Denmark, Italy, Sweden, France, a Germany.
Mycosphaerella longissima Fckl. On leaves of *B. asper* and *B. maximus* in Italy, Switzerla Denmark, and Germany.
Mycosphaerella recutita (Fr.) Johans. See Aira.
Ophiobolus carleeti (B. and Br.) Sacc. See Triticum.
Phyllachora bromi Fckl. Tar spot on leaves and leaf sheaths of *B. japonicus*, *B. unioloides*, *Brac podium* sp., and *Dactylis* sp. in Argentina, Japan, Algeria, Italy, France, and Germany.

BROMUS—Continued.
Phyllosticta bromi Poteb. On leaves of *B. patulus* in Russia.
Puccinia brachypus Speg. Linear, brown, rust pustules on leaves of *B. auleticum*, *Lolium perenne*, and *Triticum sativum* in Argentina.
Puccinia bromina Eriks. Yellow and brown to black rust pustules on leaf blades and petioles of *Pulmonaria montana*, *Symphytum officinalis*, and nearly 50 species of *Bromus* in Argentina, Australia, Asia Minor, Japan, and all of Europe.
Puccinia bromi-japonica S. Ito. Yellow-brown to black linear rust pustules on leaves of *B. japonicus* in Japan.
Septoria anthis Sacc. Linear whitish spots with rufous margins, on leaves of *Brachypodium pinnatum*, *Bromus inermis*, and *B. mollis* in Italy and Russia.
Septoria bromicola Speg. On leaves of *B. unioloides* in Chile.
Septoria bromivora Speg. On leaves of *Bromus* sp. in Argentina.
Tilletia belgradensis P. Magn. Smut in inflorescences of *B. secalinus* in Yugoslavia.
Tilletia holci (West.) Rostr. See Holcus.
Tilletia velenovskyi Bub. Smut sori in ovaries of *B. arvensis* and *B. secalinus* in Bulgaria. Said to be the same as *T. guyotiana* Har. which is of limited occurrence in the western United States.
Uredo bromi-pauciflorae S. Ito. Yellow-brown rust pustules on leaves of *B. pauciflorus* in Japan.
BROUSSONETIA PAPYRIUS Ag. PAPER MULBERRY. Ornamental trees or shrubs, bark used for paper making.
Gibberella moricola (Ces. and De N.) Sacc. See Morus.
Phyllosticta broussonetiae Trav. and Migli. Irregular whitish areas, often involving entire leaves of *B. papyrifera* in Italy.
BROWNEA. Small, tropical evergreen trees.
Fomes lamaoensis Murr. See Hevea.
Phyllachora juruensis P. Henn. Black stromata on small brown spots scattered irregularly over leaves of *Brownea* sp. in Brazil.
BRUNELLA. PRUNELLA Ag. Selfheal. Hardy herbaceous perennials. Also called heal-all.
Ophiobolus rostrupii Ferd. and Winge. On leaves of *B. vulgaris* in the Aleutian Islands.
Puccinia brunellarum-moliniae Cruchet. Rust with yellow aecial stage on leaves of *B. grandiflora* and *B. vulgaris*, and brown uredinial and telial stages on *Molinia caerulea* in Europe.
Ramularia brunellae E. and E. f. **pyrenaica** Gz. Frag. On leaves of *B. hybrida* in Spain.
Ramularia harioti Sacc. More or less circular, grayish white spots on both leaf surfaces of *B. vulgaris* in France.
Septoria greschikii Bres. On *B. grandiflora* in Europe.
Septoria trailiana Sacc. and var. **italica** Ferr. On leaves of *B. vulgaris* in Yugoslavia, Italy, Russia, and Great Britain.
BRUNFELSIA. Ornamental tropical shrubs.
Fomes lamaoensis Murr. See *Hevea*.
BRUNSVIGIA. Summer or autumn flowering bulbs.
Aecidium brunswigiae P. Henn. Leaf rust on *Brunswigia* sp. in the Union of South Africa.
Tilletia sydowii Sacc. and Trott. Smut sori 0.5 inch long in place of ovaries, protected at first by ashen-colored membranes which rupture to expose powdery black spore masses. On *B.* (*Ammochloa*) *subacaulis* in Algeria.
BRYONIA. BRYONY. Herbaceous perennial climbers.
Ascochyta bryoniae Bub. and Kab. Irregular, grayish-yellow or brown spots, often confluent, on leaves of *B. alba* in Bohemia.
Ascochyta tirolensis Bub. Small circular to oblong whitish spots with irregular surrounding zones, on leaves of *B. dioica* in Tyrol.
Ramularia bryoniae Fautr. and Roum. Large, irregular, brown spots on leaves of *B. dioica* in France.
BRYOPHYLLUM. Succulent foliage plants.
Stilbella flavida (Cke.) Lind. See Coffea.
BUDDLEIA. BUTTERFLY BUSH. Ornamental shrubs or trees cultivated for their showy flowers.
Diplodia buddleiae Pat. On leaves of *Buddleia* sp. in Ecuador.
Phyllosticta auriculata Kalch. and Cke. Circular pale-brown spots, with purple margins, on leaves of *B. auriculata* and *B. globosa* in the Union of South Africa and Denmark.
Phyllosticta montemartini Ciferri. Irregular, yellow-brown spots on leaves of *B. variabilis* (*B. davidii*) in Italy.
Septoria buddleiae Kalch. and Cke. Irregular, dark brown spots on leaves of *B. salvifolia* in the Union of South Africa.
Septoria merrillii Syd. On leaves of *B. asiatica* in the Philippines.
Septoria thümenii Sacc. Red-brown spots on leaves of *B. auriculata* in the Union of South Africa.
BUGINVILLEA. See Bougainvillea.
BULBINE. Bulbous and nonbulbous African and Australian plants.
Aecidium bulbines Henn. and Evans. Brown spots on both leaf surfaces in which yellow aecia appear. On *Bulbine* sp. in the Union of South Africa.
Uromyces bulbinis Thuem. Brown rust pustules are arranged concentrically in large circles on sunken spots on both leaf surfaces of *B. aloidis*, *B. bulbosa*, and *B. latifolia* in New South Wales and Victoria.
Uromyces semibarbatae Osborn. Leaf rust on *B. semibarbata* in Australia.
BULBOCODIUM. Crocuslike bulbous plants.
Aecidium bulbocodii Koern. Yellow rust pustules on leaves of *B. vernum* in Asia.
Urocystis colchici (Schlecht.) Rab. See Colchicum.
BULBOPHYLLUM. See Orchidaceae.
BUPHTHALMUM. OXEYE. Perennial Asian herbs.
Phyllosticta buphthalmi Allesch. Irregular spots, often occupying entire leaf area, on *B. salicifolium* in Germany.
Ramularia buphthalmi Allesch. Subcircular or irregular, often confluent, dark-violet spots, drying out to brown, on leaves of *B. salicifolium* in Germany.
Septoria buphthalmi Allesch. Small, irregular, purple or olive-colored spots on leaves of *B. salicifolium* in Germany.
BUPLEURUM. Shrubs or herbs.
Ascochyta bupleuri Thuem. (Including var. **bupleurum-fruticosum** Gz. Frag. Gray spots or leaves of *B. falcatum*, *B. fruticosum*, and *B. oboratum* in Spain, Portugal, and Germany.
Cercospora bupleuri Pass. Reddish spots on stems and branches of *B. tenuissimum* in Italy.
Didymella fruticosa v. Hoeh. Circular or oblong purple-brown spots with black margins on leaves of *B. fruticosum* in Corsica.
Entyloma bupleuri Lindr. Smut sori in brown spots on leaves and stems of *B. glaucum* in France.
Laestadia bupleuri (Dur. and Mont.) Sacc. On leaves of *B. spinosum* in Algeria.

BUPLEURUM—Continued

Phyllosticta asteromoides Bub. Irregular, confluent, purple-brown or white leaf spots on leaves of *B. falcatum* in Europe.

Phyllosticta bupleuri Sacc. Gray spots on leaves of *B. falcatum*, *B. rotundifolium*, and *B. ranunculoides* in Europe.

Puccinia bupleuri-falcati D. C. Wint. Pale-yellow aecia on leaves of *B. falcatum* in Japan. Uredo- and teleutospores unknown. Aecia "Dorei yamai aburai" and "Dorei".

Septoria amphigena Moy. On leaves of *B. falcatum* in Italy.

Septoria bupleuri Desm. Small, yellowish-white to whitish spots with black margins on leaves and culms of *B. falcatum*, *B. ranunculoides*, and *B. rotundifolium* in Europe.

Septoria bupleuricola Sacc. Irregular dark-brown spots on culms and leaves with dark-brown margins on leaves of *B. falcatum* and *B. longifolium* in Siberia.

Septoria bupleuri-falcata Sacc. Small, yellowish-white or whitish spots, white when gray-brown, with black margins on leaves of *B. falcatum* in Germany.

Septoria bupleurina Lasch. Black-brown, minute, scattered pycnidia and narrow greenish spots on leaves of *B. longifolium* in France.

Septoria diffusa F. Tass. Diffuse dark-brown leaf spots on leaves of *B. longifolium* in Italy.

Uromyces bupleuri P. Magn. Chestnut-brown rust pustules on leaves and culms of *B. falcatum* and *B. ranunculoides* in Europe and Asia.

BURCHARDIA. Monotypous genus of Liliaceae, allied to Veratrum.

Puccinia burchardiae Sacc. Yellow-brown to cinnamon-brown rust pustules on both leaf surfaces of *B. umbellata* in Australia.

BUTOMUS. L. Willows, rushes. Hardy perennial aquatic plants.

Doassansia butomi De Toni. Small soft to granular white to cream spots on leaves of *B. umbellatus* in Europe, Asia, and Germany.

Physoderma butomi Schroet. On leaves of *B. umbellatus* in Finland, Transcaucasia, Norway, and Germany.

Ramularia butomi Lind. Small, circular or angular, scattered white spots on leaves of *B. umbellatus* in Sweden.

BUXUS. Box. Ornamental evergreen, small trees or shrubs.

Ascochyta buxina Sacc. Indefinite brown-to-white spots on leaves of *B. sempervirens* in France and Italy. *Phyllosticta buxina* Sacc., which agrees in the United States in the white stage of *B. sempervirens*.

Dothidella depazoides Desm. Brown spot fruit structures on white spots on leaves of *B. sempervirens* in France, Switzerland, and Austria.

Gloeosporium louisiae Bubák. Anthracnose on leaves of *B. sempervirens* in Belgium and Hungary.

Guignardia buxi Desm. Yellow spots with brown margins on leaves of *B. sempervirens* in Europe.

Helminthosporium martinicense Pat. Black effuse spots on leaves of *B. sempervirens* in Martinique.

Phyllosticta auerswaldii Allesch. On leaves of *B. sempervirens* in Germany. Reported from New Jersey.

Phyllosticta buxina Sacc. Variable, pale-brown leaf spots with distinct dark purple borders on *B. sempervirens* in Great Britain and Italy.

Phyllosticta phacidioides Sacc. Allesch. On leaves of *B. sempervirens* in Transcaucasia.

Puccinia buxi D. C. Brown rust pustules on leaves of *B. sempervirens*. Uredo-, Puccinia-, Aecidium-, and Roestelia-spores known. Rusty Switzerland, France, Great Britain, Austria, and Germany.

Septoria phacidioides Desm. On leaves of *B. sempervirens* in France and Italy.

Uromyces ambiens Pat. Yellow-brown rust pustules on leaves of *B. sempervirens* in India.

BYRSONIMA. Tropical American trees and shrubs.

Aecidium byrsonimae Kern. & Kalchbr. Leaf and stem rust on *B. crassifolia* in Brazil and Guiana.

Aecidium byrsonimaticola P. Henn. Leaf rust on *Byrsonima* sp. in Brazil.

Aecidium byrsonimatis P. Henn. Leaf and stem rust on *B. coccolobifolia* and *Byrsonima* sp. in Brazil and Jamaica.

Aecidium singulare Diet. and Holw. Arth. Leaf rust on *B. crassifolia* in Guatemala.

Cronartium byrsonimatis P. Henn. Leaf rust on *B. coccolobifolia* in Brazil.

Cronartium notatum Arth. Brown leaf rust on *B. crassifolia* in Jamaica, Porto Rico.

Uredo byrsonimatis P. Henn. Leaf rust on *Byrsonima* sp. in Brazil.

Uredo uberabensis P. Henn. Leaf rust on *Byrsonima* sp. in Peru and Brazil.

CACALIA. Perennial herbs.

Coleosporium cacaliae Unk. Golden-yellow rust pustules on leaves of *Petasites frigidus*, *P. sibiricus*, and on leaves of unnamed species of *Cacalia*, *C. hastata*, *Senecio nemorensis*, *S. fuchsii*, *S. hercynicus*, *S. saxatilis*, *S. sarracenicus*, and *S. viscosus* in Japan, Europe, Siberia, Alaska, Canada, Great Britain, France, Italy, Switzerland, Austria, Hungary, and Germany.

Puccinia senecionicola Arth. See *petasitis*.

Puccinia transzscheli Diet. Deep-brown rust pustules on leaves of *C. hastata* in Russia.

Rhytisma hysteriodes Fr. On leaves of *C. hastata* in Siberia.

Uromyces cacaliae D. C. Wint. See *Aecidium*.

Uromyces veratri D. C. Schroet. See *Veratrum*.

CACARA. See *Pachyrhizus*.

CAESALPINIA. Ornamental tropical shrubs or trees grown for showy flowers and attractive foliage, some species yield valuable dyewoods and dye stuffs.

Helminthosporium bonducellae P. Henn. Leaf spot of *C. bonducella* in Brazil.

Laestadia caesalpiniae Pat. Purple-brown spots on leaves of *Caesalpinia* sp. in Cuba.

Ravenelia cobiniana P. Henn. Cinnamon-brown rust pustules on leaves of *C. bonducella* in Brazil.

Ravenelia humphreyana P. Henn. Cinnamon-brown to cinnamon-rust rust pustules on leaves of *C. pulcherrima* and *C. pulcherrima* in Porto Rico, Jamaica, Mexico, and Guatemala.

Ravenelia inconspicua Arth. Rust on leaves of *Caesalpinia* sp. in Mexico and *C. pulcherrima* in Guatemala.

CAJANUS. Pigeon pea. Somewhat woody herbs grown for the seeds. Similar to the following.

Aecidium cajani Pavgi. Rust on leaves of *C. indicus* in India.

Cercospora cajani P. Henn. Brown to dark-brown leaf spots on leaves of *C. indicus* in Java, Japan, Africa, and Brazil.

Cercospora instabilis Speg. Small, irregular, light-brown leaf spots. Dark-brown, sparse effused fructifications on both surfaces of leaves of *C. indicus* in Brazil.

Colletotrichum cajani Henn. Anthracnose on leaves of *C. indicus* in Brazil.

Corticium salmonicolor B. and Br. See *Pellicularia*.

Diplodia cacaicola P. Henn. See *Tjasisporium*.

CAJANUS.—*C. indicus* Spr.

Fusarium udum Butl. This fungus produces a gradual, or at times, sudden wilting and firing of primary leaves. It causes a rot of the roots and lower parts of diseased plants are covered with white mycelium in streaks. A serious disease in India on the pigeon pea, *C. indicus*, [illegible]

Heterosporium lagenarium Syd. On *C. indicus* in the Philippines.

Phoma cajani Sacc. On leaves of *C. indicus* in Brazil.

Phyllosticta cajani Speg. On leaves of *C. indicus* in Brazil.

Rhodina pruinosa E. and Ev. See Uredinales.

Uredo cajani Pat. Rust on leaves of *C. indicus* in India.

Vermicularia atramentaria E. and Ev. Black, filiform, [illegible] of conidia on the stems and leaves of *C. indicus* in Brazil.

CALACANUM. See Dermatophytes.

CALADIUM. Ornamental exotic grown for their variegated leaves. Dermatophytes parasitic.

Cercospora caladii Ell. & Tracy. Irregular reddish-brown leaf spots, with gray centers, [illegible] on leaves of *Caladium* sp. in Florida.

Gloeosporium xerosporum P. Henn. Causing [illegible] on leaves of *Caladium* sp. in Brazil.

Phyllosticta caladii Ell. & Tracy. Causing [illegible] on leaves of *Caladium* sp. in Florida.

Rhizoctonia solani Kühn. Rot of tubers of *Caladium* sp. in Java, probably the same species under the same name.

Septogloeum caladii Thüm. Causing [illegible] on leaves of *Caladium* sp. in Brazil.

Sphaceloma caladii Thüm. Causing [illegible] on leaves of *Caladium* sp. in Brazil.

Stemphylium caladii Thüm. Causing [illegible] on leaves of *Caladium* sp. in Brazil.

Thielavia basicola Zopf. Causing [illegible] on leaves of *Caladium* sp. in Brazil.

Marssonina antillana E. and E. Rare. On leaf blades and petioles of *Caladium* sp. in Antilles.

Marssonina surinamensis E. and E. Rare. On leaf blades and petioles of *Caladium* sp. in Surinam.

CALAMAGROSTIS. Hay and forage grasses.

Ascochyta graminis Lasch. See Ascochyta.

Ascochyta graminis Sacc. See Phyllosticta.

Cercosporella herpotrichoides Fron. See Cercosporella.

Cladosporium herbarum (Pers.) Link. See Cladosporium.

Coniothyrium fuckelii Sacc. See Coniothyrium.

Dilophospora graminis Desm. See Dilophospora.

Epichloë typhina (Pers.) Tul. See Epichloë.

Erysiphe graminis DC. See Erysiphe.

Fusarium roseum (Lk.) Sacc. See Fusarium.

Gloeosporium caricinum Oud. See Gloeosporium.

Gloeosporium cingulatum Ell. & Ev. See Gloeosporium.

Gloeosporium graminicolum Ell. & Ev. See Gloeosporium.

Gloeosporium graminis Sacc. See Gloeosporium.

Gloeosporium perexiguum Sacc. See Gloeosporium.

Gloeosporium phomoides Sacc. See Gloeosporium.

Gloeosporium rostrupianum Sacc. See Gloeosporium.

Gloeosporium subcutaneum Sacc. See Gloeosporium.

Gloeosporium tenellum Sacc. See Gloeosporium.

Gloeosporium tenuissimum Sacc. See Gloeosporium.

Gloeosporium typhinum Sacc. See Gloeosporium.

Gloeosporium vagans Sacc. See Gloeosporium.

Gloeosporium vitreum Sacc. See Gloeosporium.

Gloeosporium xanthostictum Sacc. See Gloeosporium.

Hendersonia culmicola Sacc. See Hendersonia.

Hendersonia graminis Desm. See Hendersonia.

Hendersonia graminum Sacc. See Hendersonia.

Hendersonia herpotrichoides Fron. See Hendersonia.

Hendersonia typhicola Sacc. See Hendersonia.

Leptosphaeria culmicola Fckl. See Leptosphaeria.

Leptosphaeria herpotrichoides Fron. See Leptosphaeria.

Leptosphaeria typhicola Sacc. See Leptosphaeria.

Leptosphaeria typhoidea Sacc. See Leptosphaeria.

Leptosphaeria vagans Sacc. See Leptosphaeria.

Leptosphaeria vitrea Sacc. See Leptosphaeria.

Leptosphaeria xanthostictum Sacc. See Leptosphaeria.

Leptothyrium culmicola Desm. See Leptothyrium.

Leptothyrium graminis Desm. See Leptothyrium.

Leptothyrium graminum Sacc. See Leptothyrium.

Leptothyrium herpotrichoides Fron. See Leptothyrium.

Leptothyrium typhicola Sacc. See Leptothyrium.

Leptothyrium vagans Sacc. See Leptothyrium.

Leptothyrium vitreum Sacc. See Leptothyrium.

Leptothyrium xanthostictum Sacc. See Leptothyrium.

Macrosporium commune Rabh. See Macrosporium.

Macrosporium graminis Fckl. See Macrosporium.

Macrosporium vagans Sacc. See Macrosporium.

Macrosporium vitreum Sacc. See Macrosporium.

Macrosporium xanthostictum Sacc. See Macrosporium.

Marssonina graminicola (Desm.) Magn. See Marssonina.

Marssonina graminum (Desm.) Sacc. See Marssonina.

Marssonina typhicola (Sacc.) Sacc. See Marssonina.

Melanconium fuligineum Cke. & Mass. See Melanconium.

Melanconium typhicola Sacc. See Melanconium.

Mycosphaerella culmicola (Fckl.) Jaap. See Mycosphaerella.

Mycosphaerella graminicola (Fckl.) Schroet. See Mycosphaerella.

Mycosphaerella graminum (Fckl.) Johans. See Mycosphaerella.

Mycosphaerella typhicola (Sacc.) Johans. See Mycosphaerella.

Mycosphaerella typhoidea (Sacc.) Johans. See Mycosphaerella.

Mycosphaerella vagans (Sacc.) Johans. See Mycosphaerella.

Mycosphaerella vitrea (Sacc.) Johans. See Mycosphaerella.

Mycosphaerella xanthostictum (Sacc.) Johans. See Mycosphaerella.

Ophiobolus culmicola (Fckl.) Sacc. See Ophiobolus.

Ophiobolus graminis Sacc. See Ophiobolus.

Ophiobolus typhicola (Sacc.) Sacc. See Ophiobolus.

Ophiobolus typhoideus (Sacc.) Sacc. See Ophiobolus.

Ophiobolus vagans (Sacc.) Sacc. See Ophiobolus.

Ophiobolus vitreus (Sacc.) Sacc. See Ophiobolus.

Ophiobolus xanthostictus (Sacc.) Sacc. See Ophiobolus.

Phaeosphaeria culmicola (Fckl.) Sacc. See Phaeosphaeria.

Phaeosphaeria graminis (Desm.) Sacc. See Phaeosphaeria.

Phaeosphaeria typhicola (Sacc.) Sacc. See Phaeosphaeria.

Phaeosphaeria typhoidea (Sacc.) Sacc. See Phaeosphaeria.

Phaeosphaeria vagans (Sacc.) Sacc. See Phaeosphaeria.

Phaeosphaeria vitrea (Sacc.) Sacc. See Phaeosphaeria.

Phaeosphaeria xanthostictum (Sacc.) Sacc. See Phaeosphaeria.

Phoma culmicola Desm. See Phoma.

Phoma graminis Sacc. See Phoma.

Phoma typhicola Sacc. See Phoma.

Phoma vagans Sacc. See Phoma.

Phoma vitrea Sacc. See Phoma.

Phoma xanthostictum Sacc. See Phoma.

Phyllosticta graminis Sacc. See Phyllosticta.

Phyllosticta vagans Sacc. See Phyllosticta.

Phyllosticta vitrea Sacc. See Phyllosticta.

Phyllosticta xanthostictum Sacc. See Phyllosticta.

Puccinia coronata Cda. See Puccinia.

Puccinia graminis Pers. See Puccinia.

Puccinia rubigo-vera (DC.) Wint. See Puccinia.

Rhabdospora culmicola Desm. See Rhabdospora.

Rhabdospora graminis Desm. See Rhabdospora.

Rhabdospora typhicola Sacc. See Rhabdospora.

Rhabdospora vagans Sacc. See Rhabdospora.

Rhabdospora vitrea Sacc. See Rhabdospora.

Rhabdospora xanthostictum Sacc. See Rhabdospora.

Septoria culmicola Desm. See Septoria.

Septoria graminis Desm. See Septoria.

Septoria graminum Desm. See Septoria.

Septoria typhicola Sacc. See Septoria.

Septoria vagans Sacc. See Septoria.

Septoria vitrea Sacc. See Septoria.

Septoria xanthostictum Sacc. See Septoria.

Sphaeronaema culmicola Desm. See Sphaeronaema.

Sphaeronaema graminis Desm. See Sphaeronaema.

Sphaeronaema typhicola Sacc. See Sphaeronaema.

Sphaeronaema vagans Sacc. See Sphaeronaema.

Sphaeronaema vitrea Sacc. See Sphaeronaema.

Sphaeronaema xanthostictum Sacc. See Sphaeronaema.

Sphaeropsis culmicola Desm. See Sphaeropsis.

Sphaeropsis graminis Desm. See Sphaeropsis.

Sphaeropsis typhicola Sacc. See Sphaeropsis.

Sphaeropsis vagans Sacc. See Sphaeropsis.

Sphaeropsis vitrea Sacc. See Sphaeropsis.

Sphaeropsis xanthostictum Sacc. See Sphaeropsis.

Stagonospora culmicola Sacc. See Stagonospora.

Stagonospora graminis Sacc. See Stagonospora.

Stagonospora typhicola Sacc. See Stagonospora.

Stagonospora vagans Sacc. See Stagonospora.

Stagonospora vitrea Sacc. See Stagonospora.

Stagonospora xanthostictum Sacc. See Stagonospora.

Stemphylium graminis Sacc. See Stemphylium.

Stemphylium vagans Sacc. See Stemphylium.

Stemphylium vitrea Sacc. See Stemphylium.

Stemphylium xanthostictum Sacc. See Stemphylium.

Uredo graminis Pers. See Uredinales.

Uredo rubigo-vera DC. See Uredinales.

Ustilago bullata Berk. See Ustilaginales.

Ustilago grandis Fr. See Ustilaginales.

Ustilago longissima Tul. See Ustilaginales.

Ustilago maydis (DC.) Cda. See Ustilaginales.

Ustilago striiformis Westd. See Ustilaginales.

Ustilago tritici (Pers.) Jens. See Ustilaginales.

Ustilago vaillantii Tul. See Ustilaginales.

Ustilago zeae Beckm. See Ustilaginales.

Ustilago zeae-mexicanae Kell. & Sw. See Ustilaginales.

Ustilago zeae-ramosae Kell. & Sw. See Ustilaginales.

Ustilago zeae-tunicatae Kell. & Sw. See Ustilaginales.

Ustilago zeae-vaginatae Kell. & Sw. See Ustilaginales.

Ustilago zeae-vulgaris Kell. & Sw. See Ustilaginales.

Ustilago zonata Kell. & Sw. See Ustilaginales.

Venturia graminis Fckl. See Venturia.

Venturia vagans Sacc. See Venturia.

Venturia vitrea Sacc. See Venturia.

Venturia xanthostictum Sacc. See Venturia.

CALAMUS. See Palmae.

CALANDRINIA. Rock purslane. Fleshy, trailing plants used in borders or rockeries.

Heterosporium calandriniae Mass. Irregular pale cinnamon-colored spots on leaves and inflorescences of *C. grandiflora* in Argentina.

Peronospora calandriniae Speg. Downy mildew on leaves of *C. portulacoides* in Argentina.

Uredo calandriniae Speg. Forms dark rusty powdery spore masses on inflorescences of *C. grandiflora* in Argentina.

CALATHEA. Tropical, arboreal foliage plants.

Septoria calathea P. Henn. On leaves of *Calathea* sp. in Peru.

CALCEOLARIA. Pouch-flowered herbs and shrubs.

Ambrosiella cinnabarina Ell. & Dis. See Isaria.

Entyloma calceolariae Lagerh. Small pale-yellow soft to angular whitish spots on leaves of *Calceolaria* sp. in Ecuador.

Peronospora potteri P. Henn. Downy mildew on leaves of *C. mexicana* in Mexico.

Phyllosticta calceolariae Speg. Causing [illegible] on leaves of *C. integrifolia* in Argentina.

CALENDULA. Pot marigold. Fleshy plants grown as annuals. Dermatophytes parasitic. Fungi [illegible]

Cercospora calendulae Cast. Small [illegible] on leaves of *C. officinalis* in Spain.

Entyloma calendulae (Oud.) De Bary. Small [illegible] on leaves, stems, and heads of *C. officinalis* in America.

Puccinia calendulae Cke. Rust on leaves, stems, and heads of *C. officinalis* in America.

CALIANDRA.

Cercospora calyptrata Ell. & Ev. On leaves of *C. tweedyi* in Siberia.

CALLA.

Ascochyta callana Thüm. Causing [illegible] on leaves of *C. palustris* in Bohemia.

CALLIANDRA.

Cercospora callicola Ell. & Ev. Brown and [illegible] on leaves of *C. tweedyi* in Siberia.

Kuehneola uredinis (Lk.) Arth. Brown [illegible] on leaves of *C. brevipes* in Brazil.

CALLIANDRA—Continued.
Ravenelia bizonata Arth. and Holw. Powdery brown rust pustules on leaves of *C. houstoni* and *Calliandra* sp. in Guatemala.
Ravenelia dieteliana P. Henn. Brown rust pustules on leaves of *C. macrocephala* in Formosa and Brazil.
Ravenelia echinata Lagerh. and Diet. Cinnamon-brown to black rust pustules on leaves of *Calliandra* sp. in Ecuador.
Ravenelia ectypa Arth. and Holw. Brown leaf rust on *C. gracilis* and *Calliandra* sp. in Costa Rica and Guatemala.
Ravenelia lagerheimiana Diet. Brown rust pustules on leaves of *Calliandra* sp. in Ecuador.
Ravenelia mexicana Tranzsch. Brown rust pustules on leaves of *C. grandiflora* in Mexico.
Ravenelia pazschkeana Diet. Brown to black rust pustules on leaves of *Calliandra* sp. in Brazil.
Uredo longipedis P. Henn. Dull yellow-brown rust pustules on brown subcircular leaf spots on *C. longipes* in Brazil.
CALLICARPA. BEAUTY BERRY. Ornamental woody plants cultivated chiefly for their bright-colored fruit.
Uromyces callicarpae (Petch.) Fuji. Brown rust pustules on leaves of *C. formosana*, *C. lanata*, and *C. tomentosa* in Ceylon and Japan.
CALLISTEMMA. See Callistephus.
CALLISTEMON. BOTTLE BRUSH. Hardy ornamental shrubs.
Phyllosticta flavidula Sacc. On leaves of *Callistemon* sp. in France.
Septoria callistemonis F. Tassi. On leaves of *Callistemon* sp. in Italy.
CALLISTEPHUS. CALLISTEMMA Ag. CHINA ASTER. Garden annuals.
Coleosporium asterum (Diet.) Syd. See Aster.
Phyllosticta asteris Bres. Subcircular to angular brown spots on leaves of *C. chinensis* in Europe.
Phytophthora sp. The "black neck" or wilt disease of China asters in Great Britain. Plants of all ages wilt and die, the lower parts of the stems becoming brown or black. The causal organism is said to be close to *P. omnivora*, but is considered distinct.
CALLUNA. HEATHER. Low evergreen shrubs.
Metasphaeria callunae Fautr. On branches of *C. vulgaris* in France.
Plowrightia polyspora (Bref.) Sacc. Small subcircular stromata on branches of *C. vulgaris* in Germany.
CALONYCTION. MOONFLOWER. Twining perennial herbs.
Septocylindrium platense Speg. Indefinite brown leaf spots on *C. aculeatum* (*C. speciosum*) in Argentina.
CALOTROPIS. MODAR-BUSH. Milkweedlike shrubs or small trees.
Ascochyta tripolitana Sacc. and Trott. Circular, definite, whitish spots with reddish margins, on leaves of *C. procera* in north Africa.
Cercospora calotropidis Speg. Indefinite yellow leaf spots on *C. procera* in Senegal. This species should be renamed, the name being occupied by the following species.
Cercospora calotropidis E. and E. Large dirty-brown spots on leaves of *C. procera* in the Bahamas and Central America.
Cercospora inconspicua Pat. and Har. Circular spots on leaves of *Calotropis* sp. in French North Africa.
Cercospora patouillardi Sacc. and D. Sacc. On leaves of *C. procera* in Guadalupe.
Napicladium calotropidis Mors. Circular, often confluent, yellow-green to olive-green spots on leaves and stems of *C. procera* in Tanganyika.
CALPURNIA. Tropical shrubs and trees.
Ascochyta calpurniae Wint. Angular to irregular, white or dirty-gray spots, with dull purple margins, on leaves of *C. sylvatica* in the Union of South Africa.
Cercospora calpurniae Petch. Diffuse yellow areas on leaves of *C. aurea* in Ceylon.
Ravenelia glabra Kalchbr. and Cke. Brown rust pustules on leaves of *C. sylvatica* in the Union of South Africa.
CALTHA. MARSH MARIGOLD. Hardy, blooming marsh plants.
Cercospora calthae Cke. Circular dull-brown leaf spots on *Caltha* sp. in Great Britain and Esthonia.
Physoderma bohemicum Sacc. Small brown galls on leaf blades and petioles of *C. palustris* in Bohemia.
Puccinia zopfii Wint. Chestnut-brown to dark-brown rust pustules on leaves of *C. leptosepala* and *C. palustris* in Argentina, Japan, Great Britain, France, Denmark, Belgium, Holland, Russia, Switzerland, Italy, Austria, and Germany.
Ramularia calthae Lindr. (*R. calthae* Gz. Frag.) Irregular whitish spots, with brown margins on leaves of *C. palustris* in Spain, Bohemia, Denmark, Finland, Austria, and Germany.
CALYCANTHUS. SWEET SHRUB. Ornamental shrubs with fragrant flowers.
Ascochyta calycanthi Sacc. and Speg. and var. **occidentalis** Fl. Tass. Leaf spots on *C. floridus* and *C. occidentalis* in Italy.
Phyllosticta calycanthi Sacc. and Speg. Brown spots, becoming white, on leaves of *C. orientalis* and *Meratia praecox* (*C. praecox*) in Denmark and Italy.
Septoria calycanthi Sacc. and Speg. Dull-yellow to brown spots on leaves of *C. floridus* and *C. laevigatus* in Italy and Portugal.
CAMELLIA. Woody plants grown for their showy white or red flowers and handsome evergreen leaves.
Ascochyta minutissima Pass. On young branches of *C. japonica* in Italy.
Ascochytella camelliae (Pass.) Fl. Tass. Oblong or irregular, grayish-white leaf spots on *C. japonica* in France.
Exobasidium assamense Syd. and Butl. Circular, then confluent and irregular, white areas on leaves of *C. drupifera* in India.
Exobasidium camelliae Shirai. See Thea.
Helminthosporium polyphragmium Syd. On stems of *C. japonica* in India.
Leptosphaeria camelliae Cke. and Mass. Brown indefinite spots on leaves of *Camellia* sp. in Australia.
Phyllosticta amphigena D'Alm. Brown leaf spots on *C. japonica* in Portugal.
Phyllosticta camelliae West. and var. **meranensis** Bub. On leaves of *C. japonica* in Denmark, France, and Austria, and on *Thea* (tea) in Japan.
CAMPANULA. BELLFLOWER. HAREBELL. CANTERBURY BELLS. Hardy herbaceous perennials.
Ascochyta bohemica Kab. and Bub. Circular to angular, often confluent, small yellowish or brown spots with purple margins on leaves of *C. trachelium* in Bohemia.
Ascochyta carpathica (Allesch.) Keissl. Small oblong or irregular whitish spots with brown margins on leaves of *C. carpathica* in Germany.
Clathrosorus campanulae Ferd. and Winge. Small swellings on roots of *C. rapunculoides* in Denmark.

CAMPANULA—Continued.

Marsonia campanulae Bres. and Allesch. Small subcircular dull-yellow leaf spots on *C. latifolia* and *C. morettiana* throughout Europe.

Peronospora corallae Tranzsch. Downy mildew attacking the flowers of *C. persicifolia* in Russia and Sweden.

Phyllosticta alliariaefolia Allesch. Large subcircular to angular ashen spots, with indefinite margins, on leaves of *C. alliariaefolia* in Germany.

Phyllosticta campanulae Sacc. and Speg. Yellowish-brown spots with darker margins on leaves of *C. glomeratum* and *C. trachelium* in Italy and Siberia.

Phyllosticta campanulina Moesz. Whitish spots with red-brown margins on leaves of *C. persicifolia* in Hungary.

Phyllosticta michauxioides P. Magn. Large leaf spots, yellow above, black beneath, on *C. michauxioides* in Asia Minor.

Phyllosticta rehmi Bub. On leaves of *C. trachelium* in Hungary.

Placosphaeria campanulae (DC.) Bäuml. Black stromata on leaves of *C. bononiensis*, *C. rapunculoides*, and *C. trachelium* in France, Yugoslavia, Switzerland, Austria, and Germany.

Pseudopeziza radians Sacc. On leaves of *C. patula*, *C. rapunculoides*, and *C. trachelium* in Great Britain, Finland, France, Belgium, and Denmark.

Puccinia heideri Wettst. Black rust pustules on leaves of *C. barbata* in Austria.

Ramularia campanulae-barbatae Jaap. and Lind. Subcircular brown spots on leaves of *C. barbata* in Switzerland.

Ramularia campanulae-rotundifoliae Lindr. Small gray or reddish spots on leaves of *C. rotundifolia* in Finland.

Ramularia coleosporii Sacc. and var. **campanulae** Car. On leaves of *C. rapunculoides*, *C. trachelium*, *Campanula* sp., *Hypericum androsaenum*, *Melampyrum* sp., *Senecio* sp., and *Telekia speciosa* in Europe.

Ramularia macrospora Fres. and var. **major** Lindr. Subcircular or irregular greenish-gray spots with ochraceous margins on leaves of *C. glomerata*, *C. latifolia*, *C. media*, *C. persicifolia*, *C. pyramidalis*, *C. rapunculoides*, and *C. trachelium* in Alaska and Europe.

Ramularia michauxioides P. Magn. On leaves of *C. michauxioides* in Asia Minor.

Septoria campanulae (Lév.) Sacc. On leaves of *Campanula* sp. in Persia.

Septoria obscura Trail. Dull brown circular or irregular leaf spots on *C. rotundifolia* in Scotland.

Septoria trachelii Allesch. Irregular spots on leaves of *C. trachelium* in Switzerland and Russia.

CAMPANUMAEA. Twining perennial herbs.

Coleosporium campanumeae Diet. Yellow rust pustules on leaves of *C. javanica* in Japan.

Puccinia campanumaeae Pat. Yellow-brown rust pustules on lower surfaces of leaves of *C. javanica* and *Campanumaea* sp. in China and Java.

CAMPE. See Barbarea.

CANAVALIA. JACK BEAN. SWORD BEAN. Prostrate trailing herbs used for green manure crops.

Cercospora canavaliae Syd. Dull-red circular to irregular areas on leaves of *C. ensiformis* and *C. gladiata* in the Philippines.

Cerotelium canavaliae Arth. Brown rust pustules on red-brown leaf spots on *C. ensiformis*, *C. gladiata*, and *Canavalia* sp. in Porto Rico and French Congo.

Elsinoe canavaliae Racib. This fungus causes distortion of the leaves and stems of *C. ensiformis* and *C. gladiata* in Ceylon and the Philippines.

Gloeosporium canavaliae Syd. Anthracnose on stems of *C. ensiformis*, *C. gladiata* and *C. turgida* in Hawaii and the Philippines.

Mycosphaerella canavaliae Syd. Indefinite brown leaf spots on *C. gladiata* in the Philippines.

Physalospora guignardioides Sacc. On leaves of *C. ensiformis* and *C. gladiata* in the Philippines.

Septoria canavaliae Lyon. Small circular to irregular spots on leaves causing them to drop prematurely. The spots are dark brown to black, becoming confluent, with ashy-gray centers on *C. ensiformis* in Hawaii.

Septoria molleriana Bres. Circular pale-brown spots with reddish margins on leaves of *C. lineata* and *C. obtusifolia* in the Philippines and island of St. Thomas (Africa).

CANDOLLEA. See Stylidium.

CANNA. Tall ornamental plants cultivated as bedding plants for the foliage and showy flowers. One species with edible root stocks.

Ascochyta cannae Rangel. On leaves of *Canna* sp. (cult.) in Brazil.

Bunchy-top. See Musa.

Puccinia cannae (Wint.) P. Henn. Yellow to black rust pustules covering the under sides of leaves of *Maranta arundinacea*, *Thalia geniculata*, *Canna coccinea*, *C. glauca*, *C. indica*, and other cultivated species and varieties throughout Central America, the West Indies and South America. Occurs also to a limited extent in south Florida. This disease destroys the ornamental value of the canna to such an extent that its culture has been abandoned in some countries where the rust is prevalent. A bacterial stem disease of *Canna* has been reported from Ceylon.

CANNABIS. HEMP. Fiber plants and occasionally used as ornamentals.

Cercospora cannabina Wakef. Circular to elongate, often confluent, pale-brown leaf spots on *C. sativa* in Uganda.

Dendrophoma marconii Cav. On *C. sativa* in Italy.

Leptosphaeria cannabina Ferr. and Mass. On leaves of *C. sativa* in Italy.

Peronospora cannabina Otth. Downy mildew causing yellowing of leaves of *C. indica* and *C. sativa* in Japan, Switzerland, Russia, and Italy.

Phyllachora cannabis P. Henn. On *C. sativa* in Brazil. Referred to the Clypeosphaeriaceae by Theissen and Sydow.

Phyllosticta cannabis (Kirch.) Speg. Subcircular dark-brown spots on leaves of *C. indica* and *C. sativa* in Yugoslavia, Bohemia, Italy, and Russia.

Rhizoctonia napi West. See Brassica.

Septoria cannabis Sacc. Indefinite dirty-yellow spots on leaves of *C. sativa* in Russia, Italy, Belgium, and Germany. Probably the imperfect stage of *Leptosphaeria cannabina* Ferr. and Mass.

Uredo kriegeriana Syd. Brown rust pustules on leaves of *C. sativa* in Germany.

CAPNOIDES. See Corydalis.

CAPRIOLA. See Cynodon.

CAPSICUM. RED PEPPER. Sometimes called Cayenne pepper. Herbs or shrubs cultivated for their fruit.

Acrothecium capsici Turc. Hazel-colored circular to oval depressed areas with brown margins on fruit of *C. annuum* in Italy.

Bacillus capsici Pavar. and Tarc. Bacterial fruit rot and wilt of plants of *C. annuum* in Italy.

Phomopsis capsici (Magn.) Sacc. On harvested fruit of *C. annuum* in Italy and the Philippines.

Phyllosticta capsici Speg. Circular grayish leaf spots with definite deep-brown margins on *C. annuum* and *Capsicum* sp. in Argentina.

CAPSICUM—Continued.

Puccinia capsici Mayor. Rust on leaves of *C. baccatum* in Colombia. This species has priority over the following, which is probably not distinct.

Puccinia capsici Averna-Sacca. Rust pustules on leaves of *C. frutescens*, *C. microcarpum*, *C. odoriferum*, and *C. pendulum* in Brazil.

Puccinia gonzalezi Mayor. Rust on leaves of *Capsicum* sp. in Colombia.

Puccinia paulensis Rangel. (*P. capsici* Averna?). Rust on leaves and twigs of *C. annuum* in Brazil.

Rhizoctonia palida Matz. See Saccharum.

Rosellinia arcuata Petch. See Thea.

Vermicularia capsici Syd. (*Steirochaete capsici* [Syd.] Sacc.). This fungus causes the most serious disease known of pepper in India, Ceylon, China, and the Philippines. Butler describes the disease as follows: "At first the flowers droop and dry up, the disease then spreading, if weather conditions are favorable, through the flower stalks to the stem. The bark turns brown and finally white. The upper portion of the plant may be killed. Round, sunken, anthracnose spots occur on the fruit, dark at first then pale at the center and coalescing. Diseased fruits shrivel and dry up." Known hosts are *Capsicum annuum*, *C. frutescens*, *Dolichos biflorus*, *D. lablab*, *Lycopersicum esculentum*, *Solanum melongena*, and *Vigna catjang*.

CARAGANA. PEA SHRUB. Siberian pea tree. Ornamental shrubs grown chiefly for their bright-yellow flowers, also as hedge plants.

Ascochyta bondarzewii P. Henn. Dull-brown spots on leaves of *C. arborescens* in Russia.

Hendersonia septem-septata Vestergr. On leaves of *C. arborescens* in Russia.

Melasmia caraganae Thuem. Black areas on leaves and branches of *C. arborescens* in Siberia.

Mycosphaerella jaczewskii A. Pot. (*Phyllosticta borszczowii* Thuem.). On leaves of *C. arborescens* in Siberia, Russia, and Germany.

Peronospora lagerheimii Gäum. Downy mildew on leaves of *C. arborescens* in Norway.

Phleospora caraganae Jacz. Indefinite yellow spots on leaves of *C. arborescens* in Russia.

Phyllachora erebia Syd. Black stromata on rust-colored spots on leaves of *Caragana* sp. in India.

Phyllosticta caraganae Syd. Whitish spots with brown margins, often at the top or along the margins of leaves of *C. chamlaga* in Germany.

Phyllosticta caraganae Fl. Tass. On leaves of *C. arborescens* in France. This species should be renamed, the name being occupied as above.

Phyllosticta gallarum Thuem. On leaves of *C. arborescens* in Siberia.

Phyllosticta spaethiana All. and Syd. Small irregular white spots with dull-brown margins on leaves of *C. arborescens* in Russia, Austria, and Italy.

Septoria caraganae P. Henn. Yellow then brown leaf spots on *C. arborescens* and *Caragana* sp. in Russia and Germany.

Uromyces genistae-tinctoriae (Pers.) Wint. Powdery cinnamon-brown rust pustules on under leaf surfaces of *C. arborescens*, *C. chamlaga*, *C. frutescens*, *C. fruticosa*, *C. pygmaea*, *Colutea arborescens*, *C. orientalis*, *Cytisus alpinus*, *C. austriacus*, *C. biflorus*, *C. capitatus*, *C. decumbens*, *C. falcatus*, *C. heuffeli*, *C. hirsutus*, *C. laburnius*, *C. liberus*, *C. linifolius*, *C. nigricans*, *C. proliferus*, *C. ramentaceus*, *C. ratisbonensis*, *C. sagittalis*, *C. sessilifolius*, *C. supinus*, *Galega officinalis*, *G. orientalis*, *Genista angelica*, *G. germanica*, *G. pilosa*, *G. sagittalis*, *G. sericea*, *G. tinctoria*, *Laburnum anagyroides*, *Sarothamnus scoparius*, and *Tetragonolobus siliquosus* in Argentina, Japan, Siberia, Canary Islands, and Europe.

CARDAMINE. BITTER CRESS. CUCKOO-FLOWER. Small leafy-stemmed perennials.

Phyllosticta cardamines Allesch. On leaf blades and petioles of *C. bellidifolia* in Greenland.

Puccinia cardamines-bellidifoliae Diet. Chestnut-brown rust pustules on leaf blades and petioles of *C. bellidifolia* in Norway and Greenland.

Puccinia cardamines-cordatae Diet. and Neg. Yellow-brown rust pustules on leaf blades and petioles of *C. cordata* and *C. reniformis* in Chile.

Puccinia cruciferarum Rud. Red-brown rust pustules on leaves of *C. alpina*, *C. asarifolia*, *C. bellidifolia*, *C. gelida*, *C. pratensis*, and *C. resedifolia* in Iceland, Spain, Switzerland, France, Belgium, Austria, and Hungary.

Ramularia cardamines Syd. Circular to irregular spots on leaves of *C. amara* and *C. pratensis* in Switzerland, Denmark, Bohemia, and Germany.

Septoria cardamines Fckl. Dark-brown effuse spots on leaves and stems of *C. amara* and *C. pratensis* in Germany.

Septoria cardamines-resedifoliae Heim. Small brown leaf spots, becoming whitish, on *C. resedifolia* in Tyrol.

Septoria cardamines-trifoliae v. Hoehn. Subcircular whitish spots with dull brown margins on both leaf surfaces of *C. trifolia* in Austria.

CARDIOSPERMUM. HEARTSEED. BALLOON VINE. Tendril climbing tropical herbs.

Aecidium cardiospermi Cke. Yellow rust pustules on yellow-brown leaf spots on *C. halicacabum* (*C. microcarpum*) in Zanzibar.

Cercospora cardiospermi Petch. On leaves of *C. halicacabum* in Ceylon.

Phyllosticta cardiospermi Speg. Circular spots on leaves of *C. velutinum* in Argentina.

CARICA. PAPAYA. Small rapid-growing unbranched trees of the Tropics with milky juice. One species with edible fruit.

Ascochyta caricae Pat. Dark linear or ovate spots on petioles becoming ashen on *C. papaya* in Ecuador.

Asterina caricarum Rehm. On leaves of *C. papaya* in Brazil.

Cercospora caricae Speg. Small, pale, indefinite spots on leaves of *C. papaya* in Brazil.

Diplodia cacaoicola P. Henn. See Theobroma.

Helminthosporium papayae Syd. Definite circular ochraceous concentrically zoned leaf spots on *C. papaya* in the Philippines.

Mycosphaerella caricae Syd. On leaves of *C. papaya* in the Philippines and Ceylon.

Ovulariopsis papayae Van der Bijl. Powdery mildew on lower leaf surfaces of *C. papaya* in the Union of South Africa. A powdery mildew, which may be the same, occurs in Florida and other countries where the papaya is grown.

Phyllosticta caricae-papayae Allesch. On leaves of *C. papaya* in Brazil and the Union of South Africa.

Phyllosticta papayae Sacc. Small subcircular whitish spots on fruit of *C. papaya* in Abyssinia.

Phytophthora faberi Maubl. See Theobroma.

Sphaerostilbe repens B. and Br. See Hevea.

CARISSA. Tropical spinose shrubs cultivated for ornament and hedges as well as for the edible berrylike fruit.

Leveillina arduinae (K. and C.) Theiss. and Syd. Black irregular stromata on upper leaf surfaces of *C. arduina* in the Union of South Africa.

Phyllosticta carissae Kalchb. and Cke. Subcircular pale-brown leaf spots with brown margins on *C. arduina* in south and central Africa.

Puccinia carissae Cke. and Mass. Dark-brown rust pustules on leaves of *C. ovata* in Australia.

CARLUDOVICA. HAT PALM. Palmlike plants of tropical America, used in making Panama hats.

Microthyrium carludovicae P. Henn. Dark-brown effuse spots on leaves of *Carludovica* sp. in Brazil.

CARPINUS. HORNBEAN. Shade and timber trees.

Ascochyta carpinea Sacc. Subcircular or sinuous dull-yellow leaf spots on *C. betulus* in Italy.

Exoascus carpini Rostr. Produces yellowing and distortion of leaves and witches'-brooms of *C. caroliniana* and *C. betulus* in Europe.

Gloeosporium carpini (Lib.) Desm. Irregular indefinite olive-brown anthracnose spots on leaves of *C. betulus* in Italy, France, Austria, and Germany.

Melampsoridium carpini (Fckl.) Diet. Yellow to yellow-brown rust pustules on lower leaf surfaces of *C. betulus*, *C. cordifolius*, and *C. yedoensis* in Japan, Russia, Italy, Switzerland, Austria, Hungary, and Germany.

Phyllosticta carpinea Sacc. Subcircular or sinuous dull-yellow leaf spots with brown margins on *C. betulus* and *C. orientalis* (*C. duinensis*) in Italy.

Phyllosticta carpini Schulz. and Sacc. On leaves of *C. betulus* in Russia.

Sclerotium carpini West. Round black sclerotia on living leaves of *Carpinus* sp. in Belgium.

Uncinula geniculata Ger. var. **carpinicola** K. Hara. Powdery mildew on leaves of *Carpinus* sp. in Japan.

CARTHAMUS. SAFFLOWER. Hardy annuals.

Cercospora carthami Syd. On leaves of *C. tinctorius* in Russia.

Cercosporina carthami Syd. Foliage frequently entirely destroyed and plants killed by this leaf disease of *C. tinctorius* in the Philippines. The spots are circular to irregular and gray-brown in color.

Erysiphe taurica Lév. See Althaea.

Gloeosporium carthami Hori and Hemmi. Brown elliptic to irregular sunken areas on leaves and stems, in which pink spore masses appear. The tips of diseased plants wilt and fall over. On *C. tinctorius* in Japan.

Puccinia carthami (Hutzelm.) Cda. Brown to dark-brown rust pustules on leaves of *C. oxyacanthus* and *C. tinctorius* in Japan, India, Egypt, Austria, and Germany.

CARUM. CARAWAY. Annual or perennial herbs, some yielding aromatic and edible garden products.

Cercospora cari Westerd. and Luyk. Sunken brown spots with dark-brown margins occur on petioles and flower stalks of *C. carvi* in Holland.

Protomyces macrosporum Ung. See Coriandrum.

Puccinia dictyospora Tranzsch. The yellow aecia of this rust form elongate swellings along the veins of the leaves with brown telial pustules following on *Carum* sp. and *Scaligeria hirtula* in Turkestan. Possibly the same as the following species.

Puccinia microsphincta Lindr. Black rust pustules on leaves and stems of *C. atrosanguineum* in Turkestan.

Urophlyctis kriegeriana P. Magn. Small pearl-like galls formed on the surface of leaves, stems, and floral parts. These galls are depressed at the apex and hollow. On *C. carvi* and *C. persicum* in Switzerland and Germany.

CARYOPHYLLUS. EUGENIA. Malabar plum. Rose apple. Tropical ornamental and fruit trees.

Puccinia jambosae P. Henn. Brown rust pustules on leaves of *C. jambos* in Brazil.

Puccinia jambulana Rangel. Brown rust pustules on leaves and fruit of *C. jambos* in Brazil.

Puccinia psidii Wint. See Psidium.

Rosellinia bunodes B. and Br. See Citrus.

Uredo flavidula Wint. Rust on leaves of *C. jambos* in Brazil.

CARYOTA. See Palmae.

CASIMIROA. WHITE SAPOTE. Tropical evergreen trees. One species cultivated for its fruit.

Bacterium citri Hasse. See Citrus.

Cercospora coleroides Sacc. Subcircular then confluent gray leaf spots with dark-brown margins on *C. edulis* in Mexico.

CASTANEA. CHESTNUT. Nut and timber trees.

Actinopelte japonica Sacc. On leaves of *C. vesca* in Japan. Reported from New Jersey.

Bacterium castanicolum Carvara. Said to cause galls at the base of stems of seedlings of *Castanea* sp. in Italy and to be distinct from *B. tumefaciens*.

Blepharospora cambivora Petri. See Ink disease.

Cylindrosporium castanicolum (Desm.) Berl. Dark-brown indefinite spots on both leaf surfaces of *C. vesca* (*C. sativa*) in Europe.

Diplodina castaneae Prill. and Delacr. Forms cankerous swellings on branches of *C. vesca* in France and Italy.

Endothia parasitica (Murr.) Ander. and Ander. This serious disease, native of Japan and China, has been introduced into the United States and Belgium. The chestnut forests of the eastern United States have been nearly exterminated, entailing a loss of many millions of dollars by this fungus, which in its native home is a comparatively harmless wound parasite. *C. mollissima*, the Chinese chestnut, is very resistant. *C. dentata*, the American chestnut, and other species of chestnut and chinquapin, are extremely susceptible. The disease appears as sunken cankers on the bark of trunks and limbs, which increase rapidly in size until girdling is effected and the limb, or the entire tree, dies. The wood is not attacked, the fungus working in the inner bark, where its presence can be noted by the characteristic fan-shaped mycelium. Diseased areas soon become covered with yellow, orange, or reddish-brown fruiting pustules. In damp weather spores are extruded in long irregular yellow or greenish horns.

Fomes korthalsii (Lév.) Cke. Causes heart and butt rot of *C. argentea* and *C. javanica* in Java.

Guignardia diffusa (Crié.) Sacc. and Trott. On leaves of *Quercus* sp. and *Castanea* sp. in France.

Lanomyces tjibodensis Gäum. On leaves of *C. argentea* in Java.

Melanconis modonia Tul. (*Coryneum perniciosum* Br. and Farn.) On dead branches of *C. vesca* in France, Great Britain, Italy, and Germany, but reported as "a very destructive" parasite in the Caucasus. Associated with the so-called ink disease, (q. v.).

Monochaetia pachyspora Bub. Large circular brown leaf spots on *Castanea* sp. in Bohemia.

Mycosphaerella punctiformis (Pers.) Starb. (*Phyllosticta punctiformis* Sacc.) Irregular, dull, yellowish-red leaf spots on *C. vesca* in Italy and Dalmatia.

Phoma endogena Sacc. Causes a hard rot of the kernels of the nuts of *C. vesca* in Italy.

Phyllosticta nubecula Pass. On leaves of *C. vesca* in Italy.

Plowrightia noxia (Ruhl.) Sacc. On *Castanea* sp., *Fagus* sp., and *Quercus* sp. in Germany. Said to be not a *Plowrightia*, and its systematic position uncertain.

Pucciniastrum castaneae Diet. Yellow rust pustules on leaves of *Castanopsis javanica* and *Castanea vesca* in Japan, India, and the Philippines.

Sclerotinia candolleana (Lév.) Fckl. See *Quercus*.

Scolecodothis castaneae Raeib. Brown-black stromata on the upper sides of leaves, with corresponding yellowish-red spots beneath, on *C. argentea* in Java.

Septoria castaneae Lév. On leaves of *C. vesca* in France and Austria.

Tubercularia confluens Pers. On leaves of *C. vesca* (*C. vulgaris*) in Spain.

CASTANEA—Continued.

Uredo castaneae P. Henn. Brown rust pustules on leaves of *C. vesca* in the Philippines.

Black spot. A disease of unknown origin attacking the fruit of *Castanea vesca* in Italy. The nu are normal in appearance until cut open, when the kernel is found dark brown or black in color.

Ink disease. The so-called ink disease of European chestnut (*C. vesca*) has caused heavy losses France, Italy, Portugal, and Spain. A number of causes, including several fungi and various e vironmental influences, have been assigned by various workers. Diseased trees wilt and die, a upon close examination the roots are found dead and rotted, the bark at the base of the trunk bei similarly affected. There is a black liquid exudate, rich in tannin, from the roots and trunk whi gives the characteristic name to the disease. The disease spreads in irregular circles from the origin infection points, trees dying in from 2 to 3 years after being attacked. Some workers have assign *Melanconis modonia* Tul. (or its imperfect stage *Coryneum perniciosum* Br. and Farn.) as the cau through destruction of the bark. More recently a phycomycete, *Blepharospora cambivora* Pet has been considered as the causative agent. This fungus is described as bringing about the formati of dark cankerous bands in the bark in the region of the root collar and out along the larger roo This type of disease would be similar to the collar rot of *Citrus* (*Phytophthora terrestria* Sherb.).

A root rot, "gangrene humide," said to be due to bacteria, is reported from Portugal.

CASTANOPSIS. Chinquapin. Ornamental trees or shrubs.

Puccinia strum castaneae Diet. See Castanea.

CASTILLA (CASTILLOA). MEXICAN RUBBER TREE.

Corticium salmonicolor B. and Br. See Citrus.

Diplodia cacaoicola P. Henn. See Theobroma.

Fomes lamaoensis Murr. See Hevea.

Rosellinia bunodes B. and Br. See Citrus.

Uredo artocarpi B. and Br. See Artocarpus.

CASTILLEJA. PAINTED CUP. Herbs with showy bracts in terminal heads or spikes.

Puccinia nesodes Arth. and Holw. Brown rust pustules on leaves of *C. communis*, *C. tenuiflo* and *Lamourouxia* sp. in Guatemala and Costa Rica.

CASUARINA. BEEFWOOD. Ornamental trees and shrubs with equisetum like leaves.

Botryosporium diffusum Cda. On branches of *C. leptoclada* in Russia.

Corticium salmonicolor B. & Br. See Citrus.

Rhizoctonia lamellifera Small. See Grevillea.

Sphaerostilbe repens B. & Br. See Hevea.

Trichosporium vesiculosum Butl. Causes a root disease of *C. equisetifolia* in India and possibly Mauritius.

CATALPA. Ornamental trees cultivated for their flowers and foliage.

Ascochyta catalpae F. Tassi. Circular ashen-colored leaf spots with dull-brown margins on *speciosa* in Italy.

Phyllosticta bacillispora Kab. and Bub. Circular to angular brown spots becoming gray and oft increasing so as to occupy entire leaf area on *C. syringifolia* in Bohemia.

Septoria catalpae Sacc. On pods of *C. bignonioides* and *C. syringifolia* in Italy.

CATASETUM. Epiphytic terrestrial orchids. See Orchidaceae.

CATTLEYA. Epiphytic orchids. See Orchidaceae.

CEDRELA. CIGAR-BOX CEDAR. Ornamental trees grown for their handsome foliage and as timb trees.

Cercospora sp. On leaves of *C. odorata* in Cuba.

Fomes lamaoensis Murr. See Hevea.

Phyllachora balansae Speg. Small black shiny stromata on leaf spots 0.5 to 2 centimeters in diam ter on *C. brasiliensis*, *C. fissilis* and other species in Brazil, Argentina, and Paraguay.

Phyllosticta agnostoica Speg. Leaf spot of *Cedrela* sp. in Brazil.

Triphragmium cedrelae Hori. Yellow to black powdery pustules on both leaf surfaces of *C. chinen* and *C. sinensis in Japan.*

Uncinula delavayi Pat. Pôwdery mildew on under leaf surfaces of *Ailanthus* sp. and *Cedrela sinen* in China and Japan.

Uromyces cedrelae P. Henn. Dull-brown rust pustules on lower leaf surfaces of *C. serrata* Java.

CEDRUS. CEDAR. CEDAR OF LEBANON. Valuable timber trees. Also grown for their handsome f iage and striking habit.

Peridermium cedri Barcl. A rust producing witches'-brooms with golden-yellow pustules on t needles of *C. deodara* in Northern India.

CEIBA. A fiber of great economic importance (silk cotton or kapok), is obtained from the pods. Al grown as shade trees.

Cercospora sp. A leaf spot on *C. pentandra* in Cuba.

CELASTRUS. BITTERSWEET. Woody climbers grown for their brightly colored fruit and handsor foliage.

Puccinia strum celastri Syd. Brown rust pustules on leaves of *C. paniculatus* in India.

Uncinula sengokui Salmon. Powdery mildew on leaves of *C. articulatus* in Japan.

CELERI. See Apium.

CELOSIA. COCKSCOMB. Garden annuals grown for their showy agglomerated flower heads, and son times colored foliage.

Cercospora gilbertii Speg. Circular gray leaf spots on *C. trigyna*, *Iresine celosioides*, and *I. paniculi* in Ecuador, Uruguay, and Argentina.

Phyllosticta celosiae Thuem. On leaves of *C. cristata* in Italy and Portugal.

Uromyces celosiae Diet and Holw. Brown rust pustules on leaves of *C. latifolia*, *Iresine calea*, and *canescens* in Mexica, Cuba, Guatemala, and Costa Rica.

CELTIS. HACKBERRY. Shade trees.

Exoascus aemiliae Pass. Grayish-white spots on leaves of *C. australis* in Italy. Probably the sa as the following species.

Exoascus celtidis (Sad.) Sacc. Brown spots or small excrescences on leaves of *C. australis* in mid and south Europe.

Mycosphaerella castagnei (Har. and Br.) Jaap. On leaves of *C. australis* in Dalmatia.

Napicladium celtidis Cav. Subcircular to angular, olivaceous spots on leaves of *C. latifolia* in Ita

Phyllosticta celtidicola Bub. and Kab. Angular to irregular, dull-yellow or brown leaf spots on *australis* in Austria.

Phyllosticta destruens Desm. Whitish spots on leaves of *C. australis*, *Prunus laurocerasus* and *lusitanica* in France, Denmark, Russia, Italy, Portugal, and Austria. Reported from Wiscon and Kansas.

Phyllosticta gei Bres. On leaves of *C. australis* in Europe.

Phyllosticta immersa Bub. Small circular sinuate greenish or yellow leaf spots on *C. austra* in Hungary.

CELTIS—Continued.

Phyllosticta talae Speg. Circular ashen-colored leaf spots on *C. tala* in Argentina.

Septoria celtidis Sacc. On leaves of *C. australis* in France and Italy.

Sporodesmium celtidis Syd. Small, definite circular gray leaf spots on *C. australis* in Yugoslavia.

Uncinula kusanoi Syd. Powdery mildew on under sides of leaves of *C. sinensis* in Japan.

Uncinula shiraiana P. Henn. Powdery mildew on lower leaf surfaces of *C. sinensis* in Japan.

Uredo celtidis Pazsch. Brown powdery rust pustules on lower leaf surfaces of *Celtis* sp. in Peru and Brazil.

Uromyces celtidis. Diet. Rust on leaves of *Celtis* sp. in Brazil.

CENTAUREA. CORN FLOWER. BACHELOR'S-BUTTON. Annuals or half-hardy perennials, used for bedding, borders, etc.

Ascochyta cyani Cruch. On leaves of *C. cyanus* in Switzerland.

Ascochyta schelliana Thuem. On leaves and stems of *C. glastifolia* in Siberia.

Bremia centaureae Syd. Downy mildew on leaves of *C. jacea* and *C. montana* in Europe.

Cercospora centaureae Diet. Irregular ashen-colored spots on both leaf surfaces of *C. phrygia* in Germany.

Cercosporella centaureae Syd. Small circular, or somewhat irregular, blackish leaf spots on *C. scabiosa* in Denmark and Germany.

Cercosporella triboutiana Sacc. and Let. Small angular leaf spots on *C. amara, C. nigrescens, C. phrygia,* and *C. pratensis* in Spain and France.

Heterosporium centaureae Ranoj. On stems of *C. spinulosa* in Yugoslavia.

Phyllosticta tagana (Thuem.) Fl. Tass. On leaves of *C. tagana* in Portugal.

Puccinia arenaricolor Plowr. Yellow to brown rust pustules on leaves of *C. nigra* and *Carex arenaria* in Great Britain.

Puccinia beltranii Gz. Frag. Rust on leaves of *C. lingulata* in Spain.

Puccinia caricis-montanae Ed. Fisch. Yellow rust pustules of *C. montana, C. nemorialis, C. nigra, C. nigrescens, C. plumosa,* and *C. scabiosa* in Russia, France, Switzerland, Austria, Hungary, and Germany.

Puccinia centaureae Mart. Brown rust pustules on many species of *Centaurea* spp. in India, Siberia, Asia Minor, Tripoli, and throughout Europe. Reported from several localities in the United States

Puccinia leuzeae Syd. Cinnamon-brown powdery rust pustules on leaves of *Leuzea* (*Centaurea*) *carthamoides* in Siberia.

Puccinia montana Fckl. Orange-yellow, then chestnut-brown or dark-brown, rust pustules on *C. cana, C. montana,* and *C. phrygia* in Anatolia, Belgium, Italy, Switzerland, Yugoslavia, Austria, Hungary, and Germany.

Puccinia obducens Syd. Dark-brown powdery rust pustules on leaves of *C. ruthenica* in Turkestan.

Puccinia pencana Syd. Pówdery cinnamon-brown to dark-brown rust pustules on leaves of *C. bulbosa* in Chile.

Puccinia persica Wettst. Yellow-brown to black powdery rust pustules on leaves of *C. belangerana, C. carduiformis,* and *C. kermanensis* in Persia.

Puccinia tenuistipes Rostr. Rust on leaves of *C. jacea* and *Carex muricata* in Yugoslavia, Sweden, Russia, Denmark, Italy, Austria, and Germany.

Puccinia verruca Thuem. Rust on leaves of *C. jacea, C. maculosa, C. montana, C. napifolia, C. nicaeensis, C. orientalis, C. pullata, C. romana, C. scabiosa, C. sonchifolia* and *C. spinulifolia* in Egypt Algeria, Corsica, Yugoslavia, Spain, Italy, Russia, Denmark, Austria, Hungary, and Germany.

Puccinia vestita Syd. Yellow-brown rust pustules on leaves of *C. myriocephala* in Kurdestan and Asia Minor.

Pyrenochaete centaureae Vogl. Indefinite gray or ashen-brown leaf spots on *C. candidissima* in Italy.

Ramularia centaureae Lindr. Small whitish spots, with dull-brown margins on leaves of *C. decalbata, C. nigra, C. phrygia, C. salicifolia,* and *C. scabiosa* in Denmark, Finland, Russia, France, Switzerland, and Germany.

Ramularia centaureae atro-purpureae Bub. Subcircular, dull-brown leaf spots with yellow centers on *C. atro-purpurea* in Hungary.

Septoria aderholdi Vogl. Indefinite, ashen-brown leaf spots on *C. candidissima* and *C. pseudophrygia* in Italy and Austria.

Septoria centaureae (Roum.) Sacc. Small olivaceous leaf spots on *C. jacea* and *C. nigra* in France.

Septoria centaureicola Brun. Circular, purple-brown leaf spots with white centers on *C. phrygia, C. scabiosa,* and *C. spinulifolia* in Russia, Yugoslavia, and France.

Septoria collinae Gz. Frag. On leaves of *C. collina* in Spain.

Septoria cyani Höll. Indefinite brown leaf spots on *C. cyanus* in Hungary.

CENTAURIUM. See Erythraea.

CENTRANTHUS. JUPITER'S BEARD. Red valerian. Annual or biennial herbs.

Aecidium centranthi Thuem. Rust on leaves of *C. calcitrapa* in Spain, France, Switzerland, and Belgium.

Puccinia valerianae Carest. See Valeriana.

Ramularia centranthi Brun. Subcircular to irregular brown leaf spots on *C. ruber* in France.

Septoria centranthicola Brun. Angular to irregular, dirty-white leaf spots with narrow dull-green margins on *C. ruber* in France.

CEPHALANTHUS. BUTTONBUSH. Shrub grown for its attractive white flower heads.

Aecidium cephalanthi-peruviani P. Henn. Chestnut-brown rust pustules on red-brown leaf spots on *C. peruvianus* in Peru.

Fusicladium cephalanthi Speg. Superficial dense olivaceous fungal layers on branches, leaves, and young inflorescenses, all of which as a result are more or less distorted. On *C. sarandus* in Uruguay and Argentina.

CEPHALARIA. Coarse annual or perennial herbs.

Laestadia cephalariae (Awd.) Sacc. See Alternanthera.

Peronospora cephalariae Vincens. Downy mildew on leaves of *C. alpina, C. leucantha,* and *C. transylvanica* in France.

Phyllosticta cephalariae Wint. Circular to irregular and finally confluent white leaf spots with dark purple margins on *C. attenuata* in the Union of South Africa.

Septoria amicabilis Boy. and Jacz. Brown leaf spots on *C. leucantha* in France.

Septoria cephalariae-alpinae Roum. Small, numerous, often confluent, whitish leaf spots with purple margins on *C. alpina* in France.

Septoria scabiosicola Desm. See Scabiosa.

Venturia cephalariae Kalchbr. and Cke. Dull-brown, circular leaf spots on *C. attenuata* in the Union of South Africa.

CERASTIUM. SNOW-IN-SUMMER. MOUSE-EAR CHICKWEED. Decumbent annuals or perennials, used in rockeries or for borders.

Aecidium balearicum Gz. Frag. Rust on leaves of *Cerastium* sp. in the Balearic Islands.

Ascochyta alpina Rostr. On leaves of *C. alpinum* in Norway.

CERASTIUM—Continued.
Ascochyta silenes E. and E. f. **cerastii** Sacc. On leaves of *C. arvense* in Italy.
Fabraea cerastiorum (Fr.) Rehm. Yellow spots on leaves and stems of *Cerastium* spp. and *Stellaria* sp. in Argentina, Australia, and throughout Europe.
Isariopsis alborosella (Desm.) Sacc. See Stellaria.
Peronospora helvetica Gäum. Downy mildew on leaves of *C. latifolium* in Switzerland.
Peronospora tornensis Gäum. Downy mildew on leaves of *C. alpinum* in Norway, Sweden, and Iceland.
Peronospora trivialis Gäum. As above on *C. arvense*, *C. semidecandrum*, and *C. triviale* in Europe and Argentina.
Septoria celanensis D. Sacc. Discoloring leaves of *C. tomentosum* in Italy.
Septoria cerasticola Rostr. On leaves of *C. alpinum* in Denmark.
Septoria cerastii Desm. and Rob. Pale-yellow leaf spots, turning ashen-gray, on *C. pumilum*, *C. triviale* and *C. vulgatum* in Italy, Spain, France, Belgium, Russia, and Austria.
Septoria commersoniana Speg. On leaves of *C. humifusum* in Argentina.
Ustilago duriaeana Tul. A smut producing brown powdery spore masses in ovaries of *C. arvense*, *C. brachypetalum*, *C. glomeratum*, and *Stellaria media* (*Alsine media*) in French and Italian north Africa, Great Britain, and Germany.

CERASUS. See Prunus.

CERATONIA. Carob. A leguminous evergreen tree, the pods of which are used for forage and to some extent for human food.
Cercospora ceratonia Pat. and Trab. Small circular or angular brown spots on leaves of *Ceratonia* sp. in Algeria and Malta.
Phyllosticta calaritana Briosi. and Cav. Irregular marginal brown blotches on leaves of *C. siliqua* in Italy.
Phyllosticta ceratoniae Berk. Irregular black marginal spots on leaves of *C. siliqua* in Tunis, Russia, Italy, Malta, and Portugal.
Ramularia australis Sacc. Leaf spot on *C. siliqua* in Italy.
Septoria carruhi Pass. Dark-brown, irregular spots on leaves and pods of *C. siliqua* in France and Malta. Said to "menace the existence of the trees in this part of the country."
Septoria ceratoniae Pass. On leaves of *C. siliqua* in Italy and France.

CERCIDIPHYLLUM. Tree grown for its handsome foliage and habit.
Polythrincium shiraianum P. Henn. Circular to angular dull-brown leaf spots on *C. japonicum* in Japan.

CERCIS. Redbud. Judas tree. Trees or shrubs grown for their pink flowers.
Aecidium lipskianum Jacz. A rust on leaves and pods of *C. siliquastrum* in Turkestan and Russia.
Ascochyta siliquastri Pass. On pods of *C. siliquastrum* in Italy.
Ovularia cercidis S. Cam. Irregular brown spots with deeper colored borders on leaves of *C. siliquastrum* in Portugal.
Phaeosphaerella japonica Shir. and Har. On leaves of *C. chinensis* in Japan.
Phyllosticta siliquastri Sacc. and Speg. Reddish leaf spots on *C. siliquastrum* in Italy and Portugal.
Septoria cercidis Fr. On leaves of *C. canadensis* and *C. siliquastrum* in Italy, France, Albania, Yugoslavia, and Russia.

CERCOCARPUS. Mountain mahogany. Small trees or shrubs cultivated for their attractive foliage and peculiar feathery-tailed achenes.
Ascochyta zonata Syd. Circular brown leaf spots (0.5 to 1 centimeter in diameter) on *C. parvifolius* in Germany.
Phyllosticta cercocarpi Syd. Small circular pale leaf spots with red margins on *C. parvifolius* in Germany.

CEREUS. Arborescent, columnar forms of cactus.
Aecidium cerei P. Henn. Rust on *Cereus* sp. in Argentina.
Cytosporella cerei Pöll. On *Cereus* sp. in Italy.
Gloeosporium josephinae D. Sacc. Anthracnose on branches of *C. nycticalis* in Italy.
Leptothyrium parasiticum Pollacci. Large gray or ochraceous spots on stems of *C. stellatus* and *C. triangularis* in Italy.
Montagnella opuntiarum Speg. On *Cereus* sp. and *Cactus peruvianus* in Brazil and Paraguay.
Mycosphaerella cerei P. Henn. On phyllodes of *Cereus macrogenus* in Brazil.
Septoria cacticola P. Henn. Pale-brown, indefinite spots, often confluent, on trunks of *C. pentagonus* in Germany.
Stagonospora assans Pass. On *Cereus* sp. and *Echinocactus* sp. in Italy.

CERINTHE. Honeywort. Annual or perennial herbs, with showy purple bracts.
Coleosporium cerinthes Schroet. Golden-yellow rust pustules on leaves of *C. minor* in Russia and Germany.
Ramularia cerinthes Höll. Circular, black leaf spots, with dull-yellow margins on *C. minor* in Hungary.

CEROPEGIA. Tropical vines cultivated in greenhouses.
Aecidium nummulare Berk. Rust on leaves of *C. biflora*, *C. candelabrum*, and *C. cumingiana* in Ceylon and the Philippines.
Phyllachora ajrekari Syd. Irregular black stromata on both leaf surfaces of *C. hirsuta* in India and Japan.

CESTRUM. Ornamental tropical shrubs.
Didymosporium stromaticum Pat. On leaves of *Cestrum* sp. in Ecuador.
Phyllachora cestri Pat. Black stromata on leaves of *Cestrum* sp. in Ecuador.
Phyllosticta cestri Speg. Ashen leaf spots with reddish borders on *C. pubescens* in Argentina.
Phyllosticta humerispora Speg. On leaves of *Cestrum* sp. in Brazil.
Puccinia cestri Diet. and P. Henn. Brown rust pustules on lower leaf surfaces of *Cestrum* sp. in Brazil and Ecuador.
Septoria cestri (Mont.) Sacc. Circular white leaf spots with dull-brown margins on *C. parqui* in Chile.
Stigmatea cestri Pat. Black, circular spots on leaves of *Cestrum* sp. in Costa Rica.
Tuberculina jaffueli Speg. On leaves of *C. parqui* in Chile.
Uromyces cestri Mont. Yellow and powdery black rust pustules on leaves of *C. athrozanthum*, *C. aurantiacum*, *C. auriculatum*, *C. lanatum*, *C. laurifolium*, *C. macrophyllum*, *C. pallidum*, *C. parqui*, and *C. pseudoquina* in Chile, Peru, Bolivia, Brazil, Argentina, Uruguay, Porto Rico, Virgin Islands, Jamaica, Mexico, Costa Rica, and Guatemala.
Uromyces maculans Arth. Brown leaf rust on *C. nocturum* in Costa Rica.
Uromyces venustus Diet. and Holw. Rust on leaves of *C. nitidum* in Mexico.

CHAEROPHYLLUM. Scented annual, biennial, or perennial herbs, often with tuberous roots.
Protomyces macrosporus Ung. See Coriandrum.
Puccinia aromatica Bub. and Lindr. Golden-yellow and deep-brown rust pustules on leaves of *C. aromaticum* in Russia, Austria, Hungary, and Germany.
Puccinia chaerophylli Purt. Cinnamon-brown to dark-brown rust pustules on leaves, petioles, and stems of *C. aureum*, *C. coloratum*, *C. hirsutum*, *C. temulum*, *Anthriscus sylvestris*, *A. nemorosa*, *A. tenuerrima*, and *Myrrhis odorata* in Europe and Siberia.
Puccinia enormis Fckl. Cinnamon-brown, powdery rust pustules on leaf blades, and petioles and on stems of *C. villarsium* in Switzerland and Austria.
Puccinia pozzii Sem. Leaf rust on *C. hirsutum* in Europe.
Puccinia prescottii Lindr. Dark-brown or black rust pustules on leaf blades and petiolcs of *C. prescottii* in Russia.
Puccinia retifera Lindr. Yellow and cinnamon-brown to dark-brown rust pustules on leaves of *C. bulbosum* in Russia, Hungary, and Germany.
Septoria chaerophylli Bres. Leaf spot on *C. aromaticum* in Germany.
CHAETOCHLOA. Annual grasses, mostly weeds. See also Setaria.
Puccinia cameliae (Mayor) Arth. Rust on leaves of *C. setosa* in Porto Rico and Colombia.
Sphaerotheca pamparum (Speg.) Clint. Sori infecting the ovaries of the spikes, extending between the glumes as oblong bodies, 3 to 7 millimeters long, inclosed by a false membrane which ruptures irregularly at the apex, disclosing the powdery, olive-black spore masses. On *C. geniculata*, *C. imberbis*, and *Chaetochloa* sp. in Argentina, Cuba, and the Bahamas.
CHALCAS. ORANGE JASMINE. Small evergreen-leaved shrubs.
Bacterium citri Hasse. See Citrus.
Corticium salmonicolor B. and Br. See Citrus.
CHAMAECYPARIS. WHITE CEDAR. Trees or shrubs cultivated for their handsome evergreen foliage. Timber trees.
Asterula chamaecyparisii Shir. and Hara. On needles of *C. obtusa* in Japan.
Coniothyrium pallido-fuscum Sacc. On needles of *C. pisifera squarrosa* (*Retinospora*) and *Araucaria brasiliensis* in France.
Gymnosporangium solenoides (Diet.) Kern. (*G. miyabei* Yam. and Miy.). A rust with the aecial (cluster-cup) stage on leaves of *Sorbus alnifolia* and *S. aria*, and the telial stage on branches of *Chamaecyparis pisifera* (*C. plumosa*) in Japan. The telial stage is characterized by elongated reddish-brown swellings with rough surfaces, on which red-brown spore masses appear.
Helicobasidium mompa Tanaka. See Morus.
Lophodermium chamaecyparisii Shir. and Hara. On needles of *C. obtusa* in Japan.
CHAMAEDOREA. See Palmae.
CHAMAEROPS. See Palmae.
CHEIRANTHUS. WALLFLOWER. Flower-garden perennials.
Asochyta cheiranthi Bres. Circular to oblong yellow or brown spots on leaves of *C. cheiri* in Alaska and Germany.
Bacterium sp. A bacterial disease of *C. annuus* is reported from Holland, characterized by a constriction of the upper part of the tap root of diseased plants, followed by yellowing and dropping of the leaves. The vascular bundles in the roots are stained brown or black
Cercospora cheiranthi Sacc. White leaf spots on *C. cheiri* in Italy.
Peronospora cheiranthi Gäum. Downy mildew on leaves of *C. cheiri* in Europe.
Phyllosticta cheiranthicola Bub. and Zimm. Circular, greenish then yellowish spots on leaves of *C. cheiri* in Bohemia.
Phyllosticta cheiranthorum Desm. Scattered irregular white or gray-green leaf spots on *C. cheiri* in France.
Septoria cheiranthi Rob. and Desm. Circular or irregular leaf spots on *C. cheiri* in France.
CHELIDONIUM. CELANDINE POPPY. Garden herbs.
Ascochyta chelidonii Kab. and Bub. Irregular brown to black leaf spots on *C. major* in Bohemia.
Didymaria chelidonii Jacz. Indefinite brown leaf spots on *C. uniflorum* in Siberia.
Melampsora magnusiana G. Wagn. See Populus.
Peronospora chelidonii Miy. Downy mildew on leaves of *C. major* in Japan.
Phyllosticta chelidonii Bres. Irregular yellow to dull-brown leaf spots on *C. major* in Germany.
Septoria chelidonii Desm. Circular to angular greenish-olive or brown leaf spots with white centers on *C. major* and *Argemone mexicana* in Porto Rico, China, Japan, Siberia, and throughout Europe.
CHENOPODIUM. GOOSEFOOT. Quinoa. Weedy herbs.
Ascochyta boni-henrici Ranoj. On leaves of *C. bonus-henricus* in Yugoslavia.
Ascochyta chenopodii Roestr. See Atriplex.
Ascochyta nebulosa Sacc. and Berl. and f. **follicola** Gz. Frag. On stems and leaves of *C. glaucum* in Siberia, Italy, and Spain.
Cercospora chenopodii Fres. On leaves of *Chenopodium* sp. in Denmark, Russia, and Japan.
Cercospora chenopodiicola Bres. Small subcircular pale-brown leaf spots on *C. polyspermum* in Russia and Germany.
Cercosporella macularis (Schroet.) Magn. On leaves of *C. bonus-henricus* in Austria.
Hypochnus peronosporoides Speg. Thin white fungus layers on lower leaf surfaces of *C. ambrosioides* in Argentina.
Ovulariopsis erysiphoides Paf. and Har. On leaves of *C. ambrosioides* in Spain.
Peronospora bohemica Gäum. Downy mildew on leaves of *C. ficifolium* in Bohemia.
Peronospora bonihenrici Gäum. Downy mildew on leaves of *C. bonus-henricus* in Europe.
Peronospora chenopodii-ficifolia Saw. Circular to irregular pale-yellow spots, often covering entire leaf area of *C. ficifolium* in Japan.
Peronospora chenopodii polyspermi Gäum. Downy mildew on leaves of *C. polyspermum* in central and north Europe.
Peronospora chenopodii rubri Gäum. As above on *C. rubrum* in Holland, Yugoslavia, and Germany.
Peronospora muralis Gäum. Downy mildew on leaves of *C. muralis* in Europe and Argentina.
Phragmidium ambrosioidus Thuem. Leaf rust on *C. album* in Yugoslavia.
Phyllosticta dimorphospora Speg. Circular pale-brown indefinite leaf spots on *C. hircinum* in Argentina.
Ramularia chenopodii Speg. On leaves of *C. album* in Argentina.
Ramularia dubia Reiss. On leaves of *C. album* and *C. patula* in Russia and Germany.
Ramularia macularis Schroet. Angular pale-yellow then white leaf spots on *C. bonus-henricus* in Switzerland, Poland, Austria, and Germany.
Rhizoctonia napi West. See Brassica.
Septoria ambrosioides Speg. On leaves of *C. ambrosioides* in Argentina.
Septoria atriplicis (West.) Fckl. See Atriplex.

CHENOPODIUM—Continued.

Septoria chenopodii West. Greenish-white than yellow leaf spots on *C. album*, *C. bonus-henricus*, *C. murale*, *C. rubrum*, and *C. viride* in Belgium, Portugal, Italy, and Germany.

Septoria undulispora Bub. On leaves of *C. murale* and *C. vulvaria* in Spain and Hungary.

Tolyposporium leptideum Syd. Cinnamon-brown smut sori in ovaries of *Chenopodium* sp. in Germany.

Urophlyctis pulposa (Wallr.) Schroet. See Atriplex.

CHILOGLOTTIS. See Orchidaceae.

CHIONODOXA. GLORY-OF-THE-SNOW. Spring bulbs.

Ustilago vaillantii Tul. See Hyacinthus.

CHIONANTHUS. FRINGE TREE. Woody plants grown for their profuse white flowers.

Aecidium chionanthi B. and Br. Rust on leaves of *Chionanthus* sp. in Ceylon.

Phyllosticta chionanthi Thuem. Irregular yellowish-white leaf spots with narrow red-brown margins on *C. virginica* in Portugal.

Septoria veleospora Sacc. On leaves of *C. virginica* in France.

CHLORIS. FINGER GRASS. Rhodes grass. Annual or perennial forage grasses. Some species grown as ornamentals.

Balansia discoidea P. Henn. On culms of *C. distichophylla* and *Chloris* sp. in Peru and Brazil.

Heterosporium chloridis Speg. On leaves of *Chloris* sp. in Brazil.

Phyllachora chloridicola Speg. Black stromata on leaves of *C. distichopylla* and *C. radiata* in Argentina.

Puccinia chloridicola P. Henn. Dull yellow-brown to black elongate rust pustules on linear dull-brown leaf spots on *Chloris* sp. in the Congo.

Puccinia chloridina Bacc. Black linear rust pustules on leaves of *Chloris* sp. in Abyssinia.

Sorosporium chloridicola Beeli. Smut on *C. polydactyla* in the Congo Free State.

Tolyposporium chloridis P. Henn. Spikelets of *C. abyssinica* and *C. gayana* become black smutty masses in central and south Africa.

Ustilago deserticola Speg. Brown-black powdery smut sori in culms and rhizomes of *Chloris* sp. in Argentina.

Ustilago ulei P. Henn. Dark-brown or dark olivaceous spore masses covering and often distorting the leaves of *Chloris* sp. in Brazil.

CHLOROPHYTUM. Rhizomatous herbaceous plants.

Aecidium chlorophyti Har. and Pat. Brown rust pustules on large leaf spots on *Chlorophytum* sp. in African Congo.

CHORIZEMA. Small shrubs grown for their showy pea-like yellow, orange, and red flowers.

Phyllosticta chorizemae P. Henn. Brown confluent leaf spots on *Chorizema* sp. in Germany.

Septoria straussiana P. Henn. Dull-brown then paler leaf spots with red-brown margins on *Chorizema* sp. in Germany.

CHRYSANTHEMUM. Herbaceous and subshrubby plants cultivated in greenhouses and out of doors for their flowers.

Aphelenchus olesistus Ritz. Bos. See Begonia.

Aphelenchus ritzemi-bosi Schwartz. This nematode is parasitic on the leaves of *Chrysanthemum* (cult.), causing them to turn brown and fall prematurely. Blossom buds also shrivel up and the entire plant ultimately dies. The disease occurs in England and Germany.

Cercospora chrysanthemi Puttem. On leaves of *C. indicum* in Brazil. Heald and Wolf have used the same name for a species found in Texas.

Corticium chrysanthemi Plow. Said to cause a basal rot of stems of *Chrysanthemum* (cult.) in Great Britain.

Entyloma leucanthemi Syd. Small circular yellow-green leaf spots on *C. leucanthemum* in Switzerland and Austria.

Peronospora danica Gäum. Downy mildew on leaves of *C. segetum* in Denmark.

Peronospora leptosperma (De By.) Gäum. As above on *C. inodorum*, *Matricaria chamomilla*, and *M. discoidea* in Europe.

Peronospora radii De By. Downy mildew attacking leaves and deforming flower heads of *Achillea ptarmica*, *Anthemis arvensis*, *A. austriaca*, *Chrysanthemum leucanthemum*, *Matricaria chamomilla*, and *M. inodora* in Switzerland, France, Sweden, Denmark, Belgium, Italy, Finland, Bohemia, Austria, and Germany.

Phoma chrysanthemi Vogl. On stems and leaves of *Chrysanthemum* sp. in Italy, causing a wilt.

Phyllosticta leucanthemi Speg. Grayish-white circular leaf spots on *C. leucanthemum* in Italy.

Protomycopsis chrysanthemi Büren. Flat yellowish-white callosities on lower leaf surfaces of *C. alpinum* in Switzerland.

Protomycopsis leucanthemi Büren. On leaves of *C. leucanthemum* in Switzerland.

Puccinia aecidii-leucanthemi Ed. Fisch. Brown to black rust pustules on leaves of *C. leucanthemum* in Europe. The aecial stage occurs on species of *Carex*.

Puccinia horiana P. Henn. Dark-brown to black rust pustules on lower leaf surfaces of *C. chinense*, *C. decaisneanum*, and *C. morifolium* (*C. sinense*) in Japan.

Puccinia leucanthemi Pass. Rust pustules on leaf blades and petioles of *C. leucanthemum* in Italy.

Puccinia proximella Syd. Brown rust pustules on leaves of *C. millefoliatum* in Russia.

Puccinia pyrethri Rabh. Pale brown to black rust pustules on leaves of *C. chinense*, *C. corymbosum* *C. parthenifolium*, *C. parthenium*, and *C. morifolium* in Japan, Russia, Switzerland, Italy, Spain, Portugal, Rumania, Austria, Hungary, and Germany.

Septoria cercosporoides Trail. Irregular indefinite spots on leaves of *C. leucanthemum* in Scotland.

Septoria chrysanthemella Cav. Circular dull red-brown leaf spots of varying size and with yellow centers on *C. morifolium* and *Chrysanthemum* (cult.) in Denmark, Italy, and Japan. Also said to cause a damping-off of seedlings.

Septoria chrysanthemi-indici Bub. and Kab. Circular, rarely irregular, dull-brown to dark-brown leaf spots on *C. indicum* in Bohemia.

Septoria chrysanthemi-rotundifolii Namys. Brown circular or irregular, often confluent, leaf spots on *C. rotundifolium* in Poland.

Septoria leucanthemi Sacc. and Speg. Yellow-brown circular or irregular leaf spots with white centers on *C.* (*Leucanthemum*) *maximum* in Italy and Portugal.

Septoria obesa Syd. Circular to irregular leaf spots on *C. arcticum* in Japan.

Septoria rostrupii Sacc. and Syd. Circular dark-brown leaf spots on *C. indicum* in Russia and Denmark.

Septoria socia Pass. and f. **catalaunica** Gz. Frag. Subcircular to irregular dull-brown leaf spots on *C. leucanthemum* in Italy, Spain, and Portugal.

Uredo autumnalis Diet. Yellow-brown rust pustules on leaves of *C. boreale*, *C. indicum*, and *C. sinense* in Japan.

CHRYSOBALANUS. COCOA PLUM. Icaco. Shrubs or trees with edible fruit. Sometimes planted for ornament.

Helminthosporium chrysobalani P. Henn. Large indefinite leaf spots on *Chrysobalanus* sp. in the Congo.

Mycosphaerella chrysobalani Miles. Irregular spots, generally confluent and occupying most of the leaf surface on *C. icaco* in Porto Rico.

CHRYSOPHYLLUM. STAR APPLE. Cainito. Handsome broad-leafed evergreen trees grown for fruit and ornamental effect.

Helminthosporium chrysophylli P. Henn. Dark-brown circular leaf spots on *Chrysophyllum* sp. in East Africa.

Phyllosticta chrysophylli Syd. Indefinite gray leaf spots on *C. imperialis* in Germany.

Septoria evansii Syd. Small circular white leaf spots with dull-purple margins on *C. magalis-montana* in the Union of South Africa.

Uredo chrysophyllicola P. Henn. Brown rust pustules on dark-brown leaf spots on *Chrysophyllum* sp. in Brazil.

CHRYSOSPLENIUM. GOLDEN SAXIFRAGE. Semiaquatic plants.

Entyloma chrysosplenii (B. and Br.) Schroet. Smut sori in small circular white or yellow leaf spots on *C. alternifolium* in Great Britain, Denmark, and Germany.

Peronospora chrysosplenii Fckl. Downy mildew on leaves of *C. alternifolium* in central and northern Europe.

Puccinia chrysosplenii Grev. Brown rust pustules on leaves of *C. alternifolium*, *C. oppositifolium*, *C. trachyspermum*, and *Mitella longiscapa* in Japan, eastern Asia, Russia, Finland, Belgium, Great Britain, Austria, Hungary, and Germany.

Septoria posoniensis Bauml. Circular or irregular greenish-gray or ashen leaf spots with narrow brown margins on *C. alternifolium* and *C. oppositifolium* in Great Britain and Hungary.

CHUSQUEA. See Bambuseae.

CICER. CHICK-PEA. Garbanzo. Gram. Herbaceous legumes.

Erysiphe taurica Lév. See Althaea.

Phyllosticta rabiei (Pass.) Trott. (*Phyllosticta cicerina* Prill. and Delacr.) Dull-yellow to gray leaf spots on *C. arietinum* in France, Italy, and Spain. The stems, petioles, and rachides are also attacked, diseased plants often breaking over at the lesions and dying.

Rhizoctonia napi West. See Brassica.

Uromyces ciceris-arietini (Grogn.) Jacz. and Boy. Small round or oval cinnamon-brown powdery rust pustules, which tend to coalesce, on both leaf surfaces of *C. arietinum* in India, East Africa, Yugoslavia, Spain, Portugal, France, and Italy.

CICHORIUM. CHICORY. Endive. Herbs cultivated for their fleshy roots and as salad plants.

Puccinia cichorii (DC.) Bell. Cinnamon-brown to dark-brown rust pustules on leaves and stems of *C. endiva* and *C. intybus* in India, Argentina, and Europe. Reported from Oregon.

Puccinia endiviae Pass. Cinnamon-brown to dark-brown powdery rust pustules on leaves and stems of *C. endivia* in Argentina, Italy, Spain, France, Holland, and Denmark. Reported from Connecticut.

Ramularia lampsanae (Desm.) Sacc. On leaves of *C. intybus*, *Lampsana communis*, and *Taraxacum officinale* in Europe.

Septoria endiviae Thuem. On leaves of *C. endivia* in Austria and Holland.

Septoria intybi Pass. On branches of *C. intybus* in Italy.

CIMICIFUGA. BUGBANE. Tall ornamental herbaceous perennials.

Aecidium shiraianum Syd. Rust on leaves of *C. biternata*, *C. foetida*, *C. intermedia*, and *C. japonica* in Japan and Siberia.

Coleosporium cimicifugatum Thuem. Yellow or orange rust pustules on leaves of *C. foetida*, *C. intermedia*, and *C. simplex* in Siberia and Japan.

CINCHONA. Tropical trees cultivated for their medicinal bark, which is sometimes called Peruvian bark and from which quinine is made.

Colletotrichum cinchonae Koord. Anthracnose on leaves of *Cinchona* sp. in Java.

Corticium salmonicolor B. and Br. See Citrus.

Dasyscypha warburgiana P. Henn. Causes a serious canker disease of limbs of *C. ledgeriana* in Java.

Guignardia yersini Vinc. On *C. ledgeriana* and *C. succirubra* in Indo-China.

Moniliopsis aderholdi Ruhl. See Solanum.

Phlyctaena cinchonae Vinc. Causes roughened, cankered areas on bark of branches of *Cinchona* spp. in Indo-China.

Phyllosticta cinchonae Koord. Irregular yellowish spots on leaves of *Cinchona* sp. in Java. The name of this species is untenable, the following having priority.

Phyllosticta cinchonae Pat. Angular dull-yellow leaf spots on *Cinchona* sp. in Ecuador.

Phyllosticta cinchonaecola Vinc. Circular deep-brown patches with violet borders on leaves of *C. ledgeriana* and *C. succirubra* in Indo-China. On old leaves a shot hole effect is produced; on young leaves the numerous spots cause deforming. Developing shoots are also involved, stunting the plants.

Phyllosticta honbaensis Vinc. On leaves of *C. ledgeriana* and *C. succirubra* in Indo-China.

Phyllosticta yersini Vinc. Attacks young leaves and shoots of *Cinchona* spp. in Indo-China.

Physalospora cinchonae Vinc. On *C. ledgeriana* and *C. succirubra* in Indo-China.

Tuiasnella cinchonae Racib. Thin pale-rose fungus layers on lower leaf surfaces of *C. ledgeriana*, *C. officinalis*, and *C. succirubra* in Java.

Uredo cinchonae P. Henn. Brown rust pustules on leaves of *Cinchona* sp. in Java.

CINERARIA. Herbs cultivated for their flowers. See also Senecio.

Aecidium cinerariae Rostr. Rust on leaves and stems of *C. cruenta* (*Senecio cruentus*) and *C. palustris* in Siberia, Denmark, Austria, and Germany. Said to be a stage of *Puccinia eriophori* Thuem. which occurs on *Eriophorum*, spp.

Ascochyta cinerariae Fl. Tass. On leaves of *C. maritima* in Italy.

Ascochyta fibrieola Sacc. On stems of *C. cruenta* and *C. maritima* in France.

Coleosporium senecionis Fr. See Senecio.

Entyloma calendulae (Oud.) De By. See Calendula.

Phytophthora cryptogea Pethybr. and Laff. See Lycopersicum.

Puccinia cinerariae McAlp. Orange-yellow and chestnut-brown to black rust pustules on leaves of *Cineraria* (cult.) in Australia.

Ramularia senecionis (B. and Br.) Sacc. See Senecio.

CINNAMOMUM. CINNAMON. CAMPHOR TREE. CASSIA BARK TREE. Evergreen trees and shrubs with aromatic leaves and wood, yielding aromatic and medicinal products.

Aecidium cinnamomi Rac. Rust on leaves, petioles, and stems of *C. iners* and *C. zeylanicum* in Java.

Ascochyta camphorae Turc. Whitish spots with purple borders on leaves of *C. glandulifera* in Italy.

Atichia miliardeti Racib. Black, superficial, radiate fruiting bodies on leaves of *Anacardium occidentale*, *Cinnamomum zeylanicum*, *Coffea arabica*, *Styrax benzoin*, and *Syzygium jambolanum* in Java and the Malay Peninsula.

CINNAMOMUM—Continued

Colletotrichum brioslii Turc. Anthracnose on leaves *C. burmanni* in Italy.

Corticium salmonicolor B. and Br. See Citrus.

Cytosporella cinnamomi Ture. Circular to irregular white leaf spots with dull-brown margins on *C. burmanni* in Italy.

Desmotascus cinnamomi Petch. Attacks the trunks and branches of *C. zeylanicum* in Ceylon.

Diplodia cacaoicola P. Henn. See Theobroma.

Exobasidium cinnamomi Petch. Rough excrescences up to 8 centimeters long and of pale-brown color on branches of *C. cassia* and *C. zeylanicum* in Ceylon.

Fomes carophylli (Rac.) Bres. Causes a root rot and wood rot of *C. zeylanicum*, *Citrus* spp., *Dalbergia latifolia*, *Mesua ferrea*, and other economic plants in Java, Ceylon, Mauritius, Japan, and Central Africa.

Fomes lamaoensis Murr. See Hevea.

Fomes lignosus Klotzsch. See Hevea.

Gloeosporium camphorae Sacc. Anthracnose on leaves of *C. camphora* (*C. officinarum*) in Italy. Reported from Texas and Alabama.

Glomerella cinnamomi Yosh. (*Guignardia cinnamomi* [Yosh.] Hara.) Anthracnose on leaf blades and petioles, buds, and young shoots of nursery stock of *C. camphora* in Japan and Formosa. The diseased spots are circular, elliptical or fusiform, reddish-brown at first and finally fading out to a light brown. The stems are girdled by a brown rot, the plants dying.

Hypochnus cucumeris Frank. See Cucumis.

Hypochnus sasakii Shirai. Leaf blight of *C. camphora* in Japan.

Leptosphaeria cinnamomi Shir. and Hara. Branch canker and leaf spot of *C. camphora* in Japan.

Macrophoma cinnamomi-glandulifferi Luigi. Large irregular blotches on leaves of *C. glanduliferum* in Italy.

Phyllostieta aromatophila Sacc. Small gray leaf spots on *C. camphora* (*C. officinarum*) in Italy.

Phyllostieta cinnamomi Delacr. Irregular dull-yellow leaf spots on *C. zeylanicum* in India.

Phyllostieta cinnamomi-glandulifferi P. Henn. Circular, finally confluent, dull-brown leaf spots on *C. camphora* and *C. glanduliferum* in Russia and Germany.

Phytophthora cinnamomi Rands. Irregular vertical stripes of dead bark (1 to 5 centimeters wide) appear on the trees, extending upward from the ground for a distance of 1 to 10 meters. At the upper end of each canker drops of wine or amber colored exudate appear. The host is *C. burmanni* in Sumatra.

Rosellinia arcuata Petch. See Thea.

Roselinia bunodes. B. and Br. See Citrus.

Scolecotrichum cinnamomi Rac. Circular gray leaf spots from 1 to 4 centimeters in diameter on *C. zeylanicum* in Java.

CISSAMPELOS. Twining herbs or shrubs.

Cercospora paeirae Speg. Circular dull-brown leaf spots on *C. parcira* in Argentina.

Phyllostieta cissampeli Speg. Small brown leaf spots with white centers on *C. parcira* in Argentina.

Uromyces cissampelidis Diet. Powdery cinnamon-brown to dark-brown rust pustules on leaves of *Cissampelos* sp. in Colombia.

CISSUS. Tropical woody climbers.

Aecidium cissigenum Welw. Leaf rust on *C. adenanchus* in Abyssinia.

Cercospora riachuelli Speg. On leaves of *C. palmata* in Argentina.

Cronartium wilsonianum Arthur. Straw-colored to dark-brown powdery rust pustules on leaves of *C. rhombifolia* in Cuba, Costa Rica, and Ecuador.

Endophyllum guttatum (Kunz.) Syd. (*Endophyllum circumscriptum* [Schw.] W. and O.) Yellow rust pustules on large swollen areas on leaves of *C. quadrangularis*, *C. rhombifolia*, and *C. sicyoides* in Italian north Africa, Central and South America, Trinidad, and the West Indies.

Entyloma cissigenum P. Henn. Smut sori in small, circular, black, often confluent, leaf spots on *Cissus* sp. in tropical Africa.

Phyllostieta cissicola Speg. Small, circular, whitish leaf spots with brown borders on *C. sicyoides* in Argentina and Porto Rico.

Schizonella colemani Iyen and Nar. This smut causes abnormal growths resembling witches'-brooms at the nodes of *C. quadrangularis* in India. The diseased branches are pale-green in color and contain dark-green elongate swellings within which the spores form as black powdery masses.

Schroeteria arabica P. Henn. Smut on *C. quadrangularis* in Arabia and India. Probably the same as the following species.

Schroeteria cissi (DC.) De T. (*Mykosyrinx cissi* [DC.] G. Beck.) Smut sori in the peduncles and pedicels of inflorescences distorting the infected parts somewhat and filling them with a dusty-purple spore mass. On *C. acida*, *C. erosa*, *C. quadrangularis*, and *C. sicyoides* in Uganda, Cameroon, Mexico, South America, and the West Indies. Also reported from Florida.

Uromyces cladomanes Traverso. Rust causing coralloidal formations on *Cissus* sp. in Somalia.

CISTUS. Rockrose. Low shrubs grown for their red or white flowers.

Ovulariopsis cisti Jaap. On leaves of *C. albidus*, *C. monspeliensis*, and *C. salvifolius* in Dalmatia.

Phyllostieta cistina Thuem. Small circular purplish black, finally ashen-colored leaf spots with purple borders on *C. crispus*, *C. laurifolius*, and *C. salvifolius* in Greece, France, and Portugal.

Uredo helianthemi Rbh. See Helianthemum.

CITHAREXYLUM. Shrubs or trees cultivated for their ornamental effect.

Phyllachora citharexyli (Rehm.) v. Hoeh. Black stromata on leaves of *C. suberosum* and *Citharexylum* sp. in Brazil.

CITROPSIS. African cherry orange. Trees allied to *Citrus*.

Bacterium citri Hasse. See Citrus.

CITRULLUS. Watermellon, Colocynth. Annual or perennial vines.

Hypochnus cucumeris Frank. See Cucumis.

Puccinia citrulli Syd. and Butl. Powdery red-brown rust pustules on leaves of *C. colocynthus* in India.

Scolecotrichum melophthorum Prill. and Delacr. See Cucumis.

Septoria citrullicola Poteb. Small circular white leaf spots on *C. vulgaris* in Russia.

CITRUS. Orange. Lemon. Grapefruit. Citron. Lime. Mandarin orange. Tangerine. Tropical and subtropical fruit trees.

Ascochyta citri Penz. Nearly circular dark-brown, finally grayish, leaf spots with definite margins on *C. limonia* and *C. sinensis* in Italy and Brazil.

Ascochyta corticola McAlp. This "bark-blotch" disease attacks the lemon (*C. limonia*) and orange (*C. sinensis*) in Australia and New Zealand. The disease begins as dark-brown spots on the lower portion of the trunk and spreads rapidly until the trunk is girdled, death of the tree resulting.

Ascochytella destruens (McAlp.) F. Tass. Minute black pustules on yellowish-brown scab like patches with red-brown margins on leaves of *Citrus sinensis* in Australia. Diseased leaves wither and the scabby areas fall out.

CITRUS—Continued.

Bacillus citrimaculans Doidge. Bacterial spot. This bacterial disease produces circular to irregular slightly sunken spots on the fruit which are yellowish at first but soon become brown, varying in shade, and often with red margins. The skin only may be affected, or the disease may penetrate into the pulp with a peculiar accompanying odor. Under moist conditions yellow viscid drops appear. Branches are attacked, infection taking place at points of attachment of the leaves, water-soaked areas of 6 to 10 millimeters in diameter appearing which increase in size. Leaves and twigs within these areas wither and die. On the larger branches irregular brown areas occur. Practically all *Citrus* spp. are attacked, including orange, lemon, citron, mandarin, tangerine, lime, and grapefruit in the Union of South Africa.

Bacterium citri Hasse. *Citrus* canker attacks all parts of the tree above ground. On the leaves the disease first appears as minute yellow-brown translucent spots, which soon become visible on both sides. These spots increase rapidly in size, and the tissues at the center soon rupture, giving the characteristic corky appearance, white or pinkish at first, later brown. The corky raised areas are surrounded by a yellowish-brown, oily, translucent area, and are inclosed by yellowish-green zones which shade into the normal green. The spots vary in size from a quarter to half an inch at maturity and are circular in shape, occurring singly or in groups. Similar corky areas occur on the twigs, thorns, branches, and fruit, tending to be more irregular and more prominent, and with a tendency to develop cracks or fissures. The fruit is attacked only while green, and may ripen prematurely and fall. While the canker spots do not penetrate deeply, the cracking of the spots opens a way for decay organisms.

This disease occurs in China, Japan, the Philippines, Hawaii, Mauritius, Ceylon, Siam, Dutch East Indies, Borneo, and Formosa. It has been introduced into the Union of South Africa, northern territory of Australia, and the Gulf States of the United States, where eradication campaigns are in progress. Practically all species and varieties are susceptible, although to a greatly varying degree, the grapefruit (*C. grandis*), *Citrus* (*Poncirus*) *trifoliata*, lime (*C. aurantifolia*) and round orange (*C. sinensis*), being especially so, and the Satsuma, King orange and kumquat rather resistant. In addition to the large number of natural hosts of the genus *Citrus* and its segregates, many *Citrus* relatives have been found susceptible to a greater or less extent through artificial inoculations. Among these are *Aegle marmelos, Atalantia citroides, A. ceylonica, A. disticha, Casimiroa edulis, Chaetospermum glutinosum, Chalcas exotica, Citropsis schweinfurthii, Clausena lansium, Eremocitrus glauca, Erodia ridleyi, E. latifolia, Feronia limonia, F. lucida, Hesperethusa crenulata, Melicope triphylla, Microcitrus australasica, M. garrowayi, M. australis, Paramignya longipedunculata, Poncirus trifoliata,* and *Toddalia asiatica.*

Bacterium gummis Comes. This bacterium is reported from Italy, Paraguay, and Brazil as the cause of a gumming disease of twigs, branches, and fruit of orange (*C. sinensis*) and lemon (*C. limonia*). In Brazil the type of disease known as mal-di-gomma or foot rot is also attributed to this organism. The disease is apparently the same as the foot rot and gummosis of Florida, now attributed to other causes.

Bark rot. This disease attacks the calomondin (*Citrus mitis*), grapefruit (*C. grandis*), mandarin (*C. nobilis* var.), and orange (*C. sinensis*) in the Philippine Islands and China, its cause being as yet unknown. It is marked by the oozing out of sap from the bark on the trunk and branches, a putrid sore from 0.5 to 3.5 centimeters in diameter forming. These sores run together and finally girdle the infected tree. The attempts of the tree to heal the spots causes a rough, scaly appearance. Gum pockets form between the wood and cambium. Any fruit present matures prematurely and falls.

Botrytis citricola Briozi. Oranges (*C. sinensis*) and lemons (*C. limonia*) are rotted and mummified by this fungus in Italy and Brazil.

Cercospora sp. Circular dark-brown leaf spots on *C. sinensis* in Japan.

Cercospora fumosa Penz. Gray irregular areas on the lower leaf surfaces of *Citrus* spp. in Algeria, Argentina, and Italy.

Cercospora penzigii Sacc. On leaves of *C. limonia* in Italy.

Cercospora undulata (Bern.) Sacc. See Aegle.

Cladosporium brunneo-atrum McAlp. Minute brown, generally circular, raised spots on fruit, leaves, and young shoots of *C. sinensis* characterize the false melanose of Australia. On the fruit these spots usually run together into long, irregular curves and become black.

Cladosporium elegans Penz. Dry, bleached, subcircular to oval spots on orange (*C. sinensis*) leaves in Italy and Australia. This species has been confused in the literature with *C. citri* Mass.

Cladosporium furfuraceum McAlp. The lemon-scurf disease, forming dingy-white patches on the surface of lemon (*C. limonia*) fruits in Australia. The discolored areas peel off in small flakes.

Cladosporium subfusoideum McAlp. Forms gray-brown scabs on lemons (*C. limonia*), which crack and become covered with darker fruiting patches. Occurs in Australia and the Philippines.

Coniothecium citri McAlp. Forms numerous small brown patches with raised brown or black margins on the upper sides of leaves of the orange (*C. sinensis*) in Australia.

Coniothecium scabrum McAlp. Causes "black scurf" of citrus (*Citrus* spp.) fruits in Australia and the Union of South Africa. Small black depressions, surrounded by yellowish-green areas appear, which enlarge to form large, sooty-black patches. The black masses become detached in flakes, leaving dirty-gray scurfy depressed areas.

Coniothyrium cervinum McAlp. Irregular gray to fawn-colored leaf spots on *C. limonia* in New South Wales.

Coniothyrium citricolum McAlp. Grayish-white leaf spots with red-brown margins on *C. sinensis* in New South Wales.

Corticium koleroga (Cke.) v. Hoeh. See Coffea.

Corticium salmonicolor B. and Br. This fungus produces the well-known and widespread "pink disease" of the Tropics, which attacks practically all woody economic plants. It occurs on the trunk and branches, first being noted as dirty-white to pinkish pustules, which push through the dead bark. Following this stage, a layer of mycelium spreads out over the bark, turning to a characteristic pink color, constituting the fruiting areas of the fungus. This layer which may extend for several feet, and even girdle the trunk and one or more limbs, is at first smooth and velvety, but with age becomes roughened and breaks into patches, which fade out to a dirty-white. The bark beneath is at first watery and somewhat darker than normal, soon, however, becoming dried out, and is finally reduced to a dry mass of fiber. The outermost wood layers are also penetrated and killed. The disease has been reported from the following countries: West Indies, including Porto Rico, Trinidad, British Guiana, Surinam, Brazil, Caucasus, Ceylon, India, Java, Guam, Philippines, Borneo, Malaya, Sumatra, Burma, Mauritius, Fiji, Formosa, west Africa, Portuguese India, and the Cameroons. Among the known hosts are *Amherstia nobilis, Annona muricata, A. squamosa, Artocarpus integrifolia, Averrhoa* sp., *Bauhinia* sp., *Cajanus indicus, Castilla elastica, Casuarina equisetifolia, Chalcas exotica, Cinchona ledgeriana, C. succirubra, Cinnamomum camphora, C. zeylanicum, Citrus aurantifolia, C. grandis, C. hystrix, C. limonia, C. medica, C. micrantha, C. nobilis, C. sinensis, C. webberi, Clitoria cajanifolia, Coffea arabica, C. liberica, C. robusta, Corchorus* sp., *Duranta*

CITRUS—Continued.

Corticium salmonicolor—Continued.

plumieri, Durio zibethinus, Eriobotrya japonica, Erythrozylon coca, Eucalyptus sp., *Feronia elephantum, Feroniella lucida, Ficus* spp., *Gardenia* sp., *Gliricidia maculata, Hevea brasiliensis, Hibiscus* sp., *Indigofera arrecta, Lansium domesticum, Mangifera indica, Myristica fragrans, Photinia japonica, Piper* sp., *Pithecolobium dulce, Prunus persica, Randia macrantha, Shorea* sp., *Strobilanthes* sp., *Thea* sp., and *Theobroma cacao.*

Cytosporella citri May. On *Citrus* sp. in Italy.

Cytosporina citriperda Camp. Circular depressed brownish-red, then black, patches on fruit of *C. sinensis* in Italy.

Dendrophoma valsispora Penz. On lemon (*C. limonia*) leaves in Italy.

Diaporthe citricola Rehm. Found in connection with *Citrus* die-back in the Philippines.

Didymella citri Noack. Produces a canker on branches and twigs of *C. sinensis* (orange) in Brazil.

Diplodia cacaoicola P. Henn. See Theobroma.

Diplodia citricola McAlp. On fruit, leaves, twigs, and branches of *Citrus* spp. in Australia.

Diplodia destruens McAlp. Said to cause scabby, dirty-gray patches with red-brown margins on leaves of *C. sinensis* in Australia.

Dry rot. See Nematospora sp.

Eutypella citricola Speg. On branches of *C. sinensis* in Brazil and Argentina.

Exobasidium citri Jacz. On young fruit of *C. nobilis* in the Caucasus.

Fusarium sp. A blossom end-rot of orange (*C. sinensis*) is produced by this fungus in Porto Rico, marked by a brown staining of the blossom ends and an internal pink rot. Affected fruits turn a deep abnormal yellow and fall prematurely.

Gloeosporium aurantiorum West. Anthracnose on *Citrus* spp. in Belgium and Argentina.

Gloeosporium citri Mass. This species, reported on leaves of *C. sinensis* from Trinidad and Australia, does not seem to be other than *Colletotrichum gloeosporioides* Penz.

Gloeosporium citricolum Hori. Irregular indefinite brown patches on leaves, causing defoliation. Young twigs are also attacked and caused to die-back. Brown anthracnose spots appear on the fruit. Attacks *C. nobilis* var. and *C. sinensis* in Japan. *G. citricolum* Massee is referred to *Colletotrichum gloeosporioides* Penz.

Gloeosporium follicolum Nish. Rapidly spreading brown areas around the blossom end of fruit of Satsuma and Mandarin (*C. nobilis* var.) in Japan. These spots become grayish and sunken at the center with dark-brown surrounding areas.

Gloeosporium hesperidearum Catt. Anthracnose on leaves of *Citrus* spp. in Italy and Argentina. Referred by Grove to *G. aurantiorum* West.

Gloeosporium intermedium Sacc. and var. **subramulosum** Sacc. Anthracnose on *Citrus* spp., *Corynocarpus laevigata,* and *Hoya carnosa* in Italy, France, and Australia. Also referred to *G. aurantiorum* West.

Gloeosporium spegazzini Sacc. Anthracnose on *C. limonia* and *C. sinensis* in Brazil and Argentina. Like most of the other *Gloeosporiums* of *Citrus* not definitely distinct from *Colletotrichum gloeosporioides.*

Hainesia aurantii P. Henn. On leaves of *C. sinensis* in Costa Rica.

Hendersonia citri McAlp. On leaves of *C. aurantium* in Australia.

Hendersonia socia McAlp. On leaves and bark of *C. limonia* in Australia.

Laestadia socia Penz. On leaves of *C. limonia* in Italy.

Lasiodiplodia citri Averna. Produces a fruit rot, die-back of twigs, and yellow to brown leaf spots of *C. sinensis* and *C. limonia* in Brazil. Said to be one of the worst of Brazilian *Citrus* diseases. The fungus is apparently not distinct from *D. cacaoicola* P. Henn.

Leaf drop. This disease, due to an unknown cause, defoliates Satsumas (*C. nobilis* var. *unshiu*) in Japan, and is considered serious.

Leptosphaeria citricola Penz. On *Citrus* sp. in Italy.

Leptosphaeria coniothyrium Sacc. On twigs of *C. limonia* and *C. sinensis* in Brazil.

Leptosphaeria diana Sacc. and Speg. On leaves of *C. aurantium* in Italy.

Macrophoma aurantii Scalia. On leaves of *C. sinensis* in Italy.

Macrophoma mantegazziana (Penz.) Berl. and Vogl. On leaves of *Citrus* spp. in Italy and Ceylon.

Meliola butleri Syd. Circular black superficial fungus patches on leaves of *C. medica* and *C. grandis* in India.

Meliola citricola Syd. Superficial black fungus patches on leaves of *C. grandis, C. nobilis,* and *C. sinensis* in China.

Microthyrium citri Penz. On leaves of *C. limonia* in Italy.

Mycosphaerella citricola McAlp. On leaves of *C. limonia* in Ceylon and Australia.

Mycosphaerella gibelliana Pass. Subcircular, brown leaf spots on *Citrus* spp. in Italy, Portugal, Spain, and Austria.

Mycosphaerella horii K. Hara. Circular to irregular definite reddish-brown to gray leaf spots with raised blackish-brown margins on *C. sinensis* and *C. nobilis* in Japan. The "small round brown spot disease."

Mycosphaerella inflata Penz. On living branches of *C. aurantium* in Italy.

Mycosphaerella loefgreni Noack. Small, circular to irregular, brown to dirty-white spots on leaves, fruit, and twigs of *C. sinensis* in Brazil. The spots on the twigs are raised, but sunken on leaves and fruit. The disease may cause premature fall of leaves and fruit.

Nematospora sp. This fungus is reported as the cause of the "dry-rot" disease of fruit of *C. sinensis, C. aurantium,* and *C. nobilis* in the Philippine Islands, China, Japan, Formosa, and possibly Barbados. There are no external symptoms. Internally infected fruits are more or less dry and free of juice, the sections becoming atrophied and falling apart. The pulp at first has an unpleasant sour taste, but soon becomes dry and tasteless.

Nothopatella lecanidium (Speg.) Sacc. On trunks and branches of *C. sinensis* in Brazil.

Oidium sp. Forms a white powdery layer on leaves and twigs, causing yellowing and premature fall of leaves and die-back of twigs of *Citrus* spp. in India and Ceylon. In the latter country said to be so serious as to prevent the growing of *Citrus* on any scale. *O. tingitaninum* Carter, described from California, is probably the same species.

Oospora aurantii Petch. Causes a rotting of fruit of *C. sinensis* in Ceylon.

Ovularia aurantii McAlp. Erumpent, effused, grayish-green patches on fruit of *C. sinensis* in Australia and Ceylon.

Ovularia citri Br. and Farn. Attacks orange fruits (*C. sinensis*) in Italy causing a disease known as "white rust."

Phoma aurantiorum (Rabenh.) Sacc. On branches of *Citrus* sp. in middle Europe.

Phoma citricarpa McAlp. The black-spot disease causes a spotting of fruit of *C. limonia, C. maxima, C. nitis, C. nobilis,* and *C. sinensis* in China, Australia, and New Zealand. The spots are small, irregular, from 1 to 9 millimeters in diameter, reddish-brown at first, later much darker and sunken.

CITRUS—Continued.

Phoma flaccida McAlp. Brown, apical leaf spots on *C. sinensis* in Australia.

Phoma omnivora McAlp. This fungus forms irregular gray to black scabby patches on the fruit and leaves. Leaves and twigs die-back, gray blotches appearing on the latter. Dark-brown cankers occur on the roots. The hosts are *C. limonia*, *C. medica*, and *C. sinensis* in Australia and Ceylon.

Phoma stigmea Dur. and Mont. On leaves of *C. aurantium* in Algeria.

Phomopsis caribaea Horne. Causes a stem-end rot of *C. grandis* in the Isle of Pines. Probably not distinct from *P. citri* Fawc.

Phyllosticta arethusa Bub. On leaves of *C. aurantium* in Austria.

Phyllosticta beltranii Penz. On leaves of *C. limonia* in Italy.

Phyllosticta circumsepta Sacc. On fruit of *C. nobilis* in the Philippines.

Phyllosticta citricola Hori. Circular to irregular brown leaf spots on *C. nobilis* and *C. sinensis* in Japan.

Phyllosticta deliciosa Pass. Brown leaf spots with raised margins on *Citrus* sp. in Italy.

Phyllosticta disciformis Penz. and var. **brasiliensis** Speg. Circular to irregular ashen-white leaf spots with dull-brown margins on *Citrus* spp. and *Atalantia buxifolia* in Russia, Ceylon, Italy, and Brazil.

Phyllosticta fuliginosa Massal. Irregular olivaceous to dull-brown leaf spots on *Citrus* sp. in Italy.

Phyllosticta hesperidearum Penz. Small, irregular, brown, then yellow, and finally ashen leaf spots, and dull-brown corky areas on twigs of *C. limonia* and *C. sinensis* in Brazil, Algeria, and Australia.

Phyllosticta lenticularis Pass. Leaf spot on *Citrus* sp. in Portugal.

Phyllosticta longispora McAlp. Brown to gray apical and marginal leaf spots on *C. sinensis* in Australia.

Phyllosticta marginalis Penz. Irregular white spots with brown margins on leaves of *C. medica* in Italy.

Phyllosticta micrococcoides Penz. Dark-brown, irregular spots on young leaves of *Citrus* sp. in Italy.

Phyllosticta scabiosa McAlp. On leaves of *C. limonia* in Australia.

Phytophthora sp. Causes a rot of *Citrus* fruits in Porto Rico.

Phytophthora citri Ven. Causes a soft rot of fruit of *C. media* in India.

Pleospora batumensis Naou. On petioles of *C. sinensis* in south Russia.

Pleospora citrorum Sacc. On *Citrus* sp. in Italy and Argentina.

Pleospora disrupta McAlp. Disorganizes the tissues of orange (*C. sinensis*) leaves in Australia.

Pleospora hesperidearum Catt. Causing a scabbing of fruit of *Citrus* sp. in Italy and Uruguay.

Polyporus caryophylli Racib. See Cinnamomum.

Pyrenochaeta destructiva McAlp. Circular to oval gray leaf spots with brown margins on *C. aurantium* and *C. grandis* in Australia.

Ramularia citri Penz. On leaves of *C. sinensis* in Italy.

Ramularia scabiosa McAlp. and Tryon. Circular definite light-brown, then nearly black, raised spots on leaf blades and petioles of *C. limonia* and *C. sinensis* in Australia.

Ramularia undulata Bern. On leaves of *Citrus* sp. and *Aglaia odorata* in Java.

Rhabdospora flexuosa (Penz.) Sacc. On bark of *C. sinensis* in Italy and Brazil.

Rhynchodiplodia citri Br. and Farn. This fungus, reported as the cause of a serious lemon (*C. limonia*) disease in Italy and Brazil, is probably the same again as *D. cacaoicola* P. Henn.

Rosellinia sp. An undetermined species of *Rosellinia* causes a root rot of *Citrus* spp., *Erythrina* sp. *Theobroma cacao*, and possibly other economic plants in the West Indies. Diseased trees die-back slowly, suckering freely, and finally dying. The rot in the roots and crowns resembles that produced by *R. pepo*. A *Rosellinia* sp. is reported as the cause of a root disease of *C. sinensis* in Spain and the Balearic Islands.

Rosellinia bunodes B. and Br. The "black root disease" attacks and destroys a wide range of tropical plants, including *Acalypha* sp., *Artocarpus incisa*, *Cajanus indicus*, *Castilla elastica*, *Cinnamomum camphora*, *Citrus* spp., *Coffea arabica*, *Dryobalanops aromatica*, *Eugenia jambos*, *Ficus dubia*, *Hevea brasiliensis*, *Hibiscus rosa-sinensis*, *Mangifera indica*, *Maranta arundinacea*, *Miconia* sp., *Panax plumatum*, *Persea gratissima*, *Petireria alliacea*, *Piper nigrum*, *Sterculia caribaea*, and *Theobroma cacao* in the West Indies, Trinidad, India, Malaya, Java, and Ceylon. The disease is apparently most prevalent and most serious in the West Indies, the *Rosellinia* root disease of tea and other woody plants in the oriental tropics being attributed for the most part to other species.

The fungus attacks the roots and crowns of the hosts, working through the bark to the wood. Black fungus strands or rhizomorphs appear on the surface and may grow together to form a dense layer. From the lower surface black strands, with a white core, grow out, penetrating the bark and finally the wood. The fungus fruits on the surface layer which extends up the trunk of the host a short distance, a conidial stage of black bristle-like stalks (Graphium) appears first, followed by the black globose carbonaceous perithecia. Infected plants die back gradually as the disease progresses, until girdled, when wilting and death occurs.

What is thought to be the same species has been found in the British West Indies, causing a root disease and rot of tubers or rhizomes of arrowroot (*Maranta*), *Colocasia*, *Dioscorea*, and other herbaceous plants. The external rhizomorphs are lacking, but the internal conditions are similar to those of woody plants attacked by *R. bunodes*.

Rosellinia pepo Pat. The root disease attributed to this species is called white root rot and attacks *Cajanus indicus*, *Citrus* spp., *Coffea arabica*, *Hymenaea courbaril*, *Manihot utilissima*, *Theobroma cacao*, and other woody plants in Porto Rico, Martinique, Guadeloupe, Trinidad, and the British Antilles. Herbaceous plants, such as dasheens (*Colocasia*), *Musa*, and *Canavalia*, are also attacked readily.

The fungus forms an irregular gray, then black, coating over infected roots. White strands grow out from this layer through the bark and form another much-branched white fungus layer or "fan" between the wood and the bark. The white strands penetrate the wood along the medullary rays. The fungus is black only when exposed. The effect on diseased plants is similar to that produced by *R. bunodes*.

Septobasidium acaciae Saw. See Acacia.

Septoria arethusa Penz. Ochraceous leaf and fruit spots on *C. limonia* and *Citrus* sp. in Brazil, Argentina, Italy, France, and Algeria. *Podocarpus* sp. has also been given as a host, but this reference seems doubtful.

Septoria cattanei Thuem. Small ochraceous leaf spots on *C. medica* in India and the Canary Islands.

Septoria cinerescens (Dur. and Mont.) Sacc. On leaves of *C. aurantium* in Algeria.

Septoria citri Pass. On leaves of *Citrus* sp. in Italy, Spain, Portugal, and France.

Septoria depressa McAlp. Brown to black circular to irregular sunken spots on fruit of *C. limonia*, *C. medica*, and *C. sinensis* in Australia.

Septoria flaccescens McAlp. Apical brown areas on leaves of *C. sinensis* in Australia.

Septoria glaucescens Trab. "Spot disease" of mandarin (*C. nobilis* var.) in French North Africa.

CITRUS—*Continued*

Septoria limonum Pass. On leaves and fruit of *Citrus* spp. in Italy.

Septoria [illegible] On leaves of *C. limonum* in Italy.

Septoria [illegible] Brown leaf spots on *C. limonum* in Italy.

Septoria westraliensis Mosby. Circular to irregular white-gray leaf spots with brown margins on *C. limonum* in Australia.

Septoria citri Penz. and Sac. Fruit rot of *C. limonum* in Spain.

Sphaeropsis pseudo-diplodia Pat. Dieback. On twigs and branches of *Citrus* spp. in Brazil. Apparently identical with *Diplodia natalensis*.

Sphaeropsis tumefaciens Hedges. Knots or galls are produced on the trunks and branches, varying from [illegible] in size. A watery-brown effect may appear [illegible] the bark and the pulp [illegible]. The disease occurs on *C. aurantium* and *C. limonum* in Texas, Arizona, Guiana, and Jamaica.

Sphaerotilla repens B. and Br. See Hexia.

Spiridesmium griseum Mosby. Dusty-gray scabby patches, crustose and breaking into irregular areas, on fruit and leaves of *C. limonum* and *C. paradisi* in Australia and New Zealand.

Trichosporia alpei Sacc. Causes sporulose of fruit of *C. limonum* in Italy.

CLADRASTIS. Yellow-wood. Trees grown for their purple flowers and handsome foliage.

Aecidium cladrastidis Ell. and Bolt. On *C. lutea* in Tennessee.

Cercospora cladrastidis Ell. Subcircular brown leaf spots with red margins on *C. lutea* (*Maackia amurensis*) in Japan and Siberia.

Uromyces amurensis Kom. Yellow and cinnamon-brown to black rust pustules on leaves of *C. amurensis* in Amurland.

Uromyces cladrastidis Farlow. Black rust sori on leaves of *C. chinkokianus* in Japan.

Uromyces shikokianus Kusano. Yellow-brown to black rust sori on leaves of *C. chinkokianus* in Japan.

CLARKIA. Farewell-to-spring.

Phytophthora parasitica Dastur. See Ricinus.

CLAYTONIA. Spring beauty. Succulent herbs cultivated for their flowers.

Puccinia claytoniae Tranz. Rust on leaves of *C. virginica* in America.

LEMATIS. Clematis or vine perennials, herbs, shrubs with many [illegible] showy flowers.

Aecidium englerianum P. Henn. and Lind. Leaf rust on *C. englerana* in Abyssinia and Tanganyika.

Aecidium orbiculare Barcl. Rust seen as hypertrophy of stems of *C. grata*, *C. orientalis*, and *C. [illegible]* in India.

Aecidium otagense Lindau. A rust deforming the leaves, peduncles, and flowers of *C. colensoi*, *C. forsteri*, *C. indivisa*, and *C. marata* in New Zealand. Possibly a phase of *Puccinia caricis*.

Aecidia industata Bres. Subcircular to oblong rust-brown leaf spots on *C. recta* in France and Germany.

Aecidia vitalba Br. and Har. On leaves and branches of *C. vitalba* in France.

Coleosporium clematidis Barcl. Yellow to orange rust pustules on leaves of *Clematis* spp. in China, Japan, Java, Formosa, India, Abyssinia, eastern and south Africa, and Australia.

Coleosporium clematidis-aphyllae Diet. Yellow rust pustules on leaves of *C. aphylla* and *C. per[illegible]* in Japan and China.

Coleosporium clematidis Syd. Leaf rust on *C. heterophylla* in Japan.

Erysiphe taurica Lév. See Antheca.

Marsonia clematidis All. Large irregular indefinite dull-brown zoned leaf spots on *C. vitalba* and *[illegible]* in Germany.

Phyllosticta bacteriosperma Pass. Irregular angular dull-brown leaf spots on *C. vitalba* in Italy.

Phyllosticta beguinotiana Sacc. Small subcircular light-brown, then white, leaf spots on *C. flammula* in Italy.

Phyllosticta corrodens Pass. Indefinite gray leaf spots with dull-brown margins on *C. vitalba* in [illegible] and Denmark.

Phyllosticta intermedia Allesch. Small subcircular to angular whitish leaf spots with brown margins on *C. recta* in France and Germany.

Phyllosticta vitalba Cke. Leaf spots on *Clematis* sp. in Great Britain.

Physalospora disseminata Sacc. On leaves of *C. glauca* in Siberia.

Puccinia clavata Syd. Brown rust pustules on small sunken brown leaf spots on *C. hexapetala* in [illegible]

Puccinia exhausta Diet. Brown powdery rust pustules on leaves of *C. brevicaudata*, *C. javensis*, *C. leschenaultiana*, and *C. tubicaulis* in Java, Japan, and the Philippines.

Puccinia insidiosa Berk. Leaf rust on *C. vedana* in India.

Puccinia wattiana Barcl. Brown rust pustules on sunken black leaf spots on *C. buchaniana*, *C. gouriana*, and *C. puberula* in India.

Septoria aecidiicola Pat. On leaves of *C. cirrhosa* in Tunis.

Septoria cirrhosae Sacc. Circular dull-yellow leaf spots with dark-purple margins on *C. cirrhosa* in [illegible]

Septoria clematidis Kob. and Desm. Circular to angular grayish leaf spots with dull-brown margins on *C. flammula*, *C. glauca*, and *C. vitalba* in Ecuador, Siberia, and Europe.

Septoria clematis-flammulae Rostr. Small subcircular gray, then white, leaf spots with brown margins on *C. flammula* in Dalmatia, France, and Italy.

Septoria clematis-rectae Sacc. Grayish-white leaf spots on *C. recta* in Italy.

Septoria vitellae Pass. Leaf spots on *C. vitalba* in Italy.

CLEOME. Spiderflower. Mostly weedy herbs.

Coleosporium conspicuum Farl. Leaf spots on *C. pentaphylla* in Porto Rico.

CLERODENDRUM. Glory flower. Shrubs, trees, or climbers grown for their showy flowers.

Aecidium clerodendri P. Henn. Leaf rust on *C. ellenbeckianum*, *C. eriophyllum*, *C. fragrans*, *C. intermedium*, [illegible] *C. paniculatum* in Java, Japan, and the Philippines.

Aecidium clerodendriicola P. Henn. Leaf rust on *C. [illegible]* in Tanganyika.

Aecidium clerodendronis P. Henn. Leaf rust on *Clerodendron* sp. in India-China.

Cercospora hakeri Syd. On leaves of *C. intermedium* in the Philippines.

Cercospora clerodendri Ell. & [illegible] Leaf spot on *Clerodendron* sp. in China.

Chrysomyxa peregrina Syd. and Butl. Yellow-brown rust pustules on leaves of *Clerodendrum* sp. in India.

Coleosporium clerodendri Diet. Yellow to orange rust pustules on lower leaf surfaces of *C. cyrtophyllum*, *C. fragrans*, and *C. infortunatum* in Java, Japan, and the Philippines.

Hemileia schoutii Syd. Yellow rust pustules on leaves of *Clerodendrum* sp. in central and south Africa and Portuguese East Africa.

Physalospora clerodendri Syd. On leaves of *Clerodendrum* sp. in the Congo.

Puccinia erebia Syd. Leaf rust on *C. commersonii* and *C. infortunatum* in the Philippines.

Synchytrium collapsum Syd. and Butl. Small swellings on [illegible] of *Clerodendrum* sp. in India.

Uredo clerodendricola P. Henn. Leaf rust on *C. inerme* in Java, Ceylon, and China.

CLETHRA. White alder. Shrubs or small trees grown for their spikes of white fragrant flowers.
Phyllachora rubefaciens Rehm. Shiny black stromata on red-brown leaf spots on *C. [illegible]*.
Pucciniastrum cleturae Syd. Leaf rust on *C. [illegible]* in Japan.
Pucciniastrum kusanoi Diet. Leaf rust on *C. [illegible]* in Japan.
CLIANTHUS. Parrot beak. Sometimes called Glory pea. Tender half-trailing shrubs with large showy flowers.
Ascochyta clianthi Tass. Dull-brown to whitish irregular leaf spots on *C. arborea* in Italy.
CLINTONIA. Low-growing American herbs.
Puccinia clintoniae-uliginosi Arth. Cinnamon-colored rust pustules on the upper surfaces of leaves [illegible] in Alaska [illegible] Siberia.
CLITORIA. Butterfly pea. Hardy perennial vines with pealike flowers.
Cercospora pantoleuca Syd. Dark-brown colonies on leaves of *C. [illegible]* in India and the Philippines.
Cercospora ternatense Petch. Circular black spots with gray centers, which become gray with yellow to [illegible] margins, on leaves and pods of *C. [illegible]* in Ceylon.
Corticium salmonicolor B. and Br. See *Pellicularia*.
Meeraniia juruana P. Henn. Black shiny stromata on leaves of *Clitoria* sp. in Brazil.
Uromyces clitoriae Arth. Powdery brown rust pustules on lower leaf surfaces of *C. [illegible]* in Mexico.
Uromyces neurocarpi Diet. Powdery brown rust pustules on leaves of *C. [illegible]* and *C. [illegible]* in Puerto Rico, Jamaica, Trinidad, and Brazil.
Uromyces yurimaguasensis P. Henn. Brown rust pustules on circular dull-brown leaf spots on *C. [illegible]* and *[illegible]* sp. in Peru and Panama.
CLIVIA Himantophyllum. Kaffir lily. Tender bulbous plants with evergreen leaves and showy red or red and yellow flowers.
Ascochyta clivinae Magnaghi. On leaves of *C. miniata* in Italy.
Colletotrichum clivinae Appel. Small, irregular red to brown leaf spots on *C. [illegible]* and *Clivia* sp. in Sweden, Finland, and Prussia.
Physalospora himanthophylli Gr. Frag. On leaves of *Himanthophyllum [illegible] miniata* in Spain.
CLUSIA. Tropical trees used to some extent for shade.
Coccomyces clusiae Del. Sacc. Black fruiting pores on leaves of *Clusia* sp. in Costa Rica and [illegible] Antilles.
Phyllosticta clusiae Allesch. On leaves of *Clusia* sp. in Brazil.
Septocylindrium clusiae Kunze and Sch. On leaves of *Clusia* sp. in Jamaica.
Uredo clusiae Arth. Pale-brown rust pustules on leaves of *C. [illegible]* in Porto Rico.
CLYTOSTOMA. Bignoniaceous vines, grown for their ornamental flowers.
Phyllachora amphigena Speg. See *Polystigma*.
COBAEA. Climbers grown for their large bell-shaped flowers.
Phyllosticta cobaeae Pass. Leaf spot on *C. [illegible]* in Italy.
Septoria oligocarpa Niessl. Small, subcircular leaf spots with narrow purple margins on *C. [illegible]* in Italy.
COCCOLOBA. Sea grape. Tropical shrubs and trees, some species grown for their ornamental foliage.
Cercospora bicolor Wint. Leaf spots on *C. [illegible]* in Europe.
Fabraea coccolobae P. Henn. Minute hypophyllous acervuli on leaves of *[illegible]* in Brazil.
Phyllachora coccolobae Speg. Black stromata on leaves of *Coccoloba* sp. in Argentina.
Phyllachora simplex Speg. Small, scattered black stromata on leaves of *C. [illegible]* and *Coccoloba* sp. in Paraguay and Porto Rico.
Phyllosticta coccolobae P. and S. Circular purplish leaf spots, 3 to 5 m. in diameter, in summer on *C. [illegible]* in the Bahamas.
Physalospora coccolobae Rehm. Circular yellowish leaf spots on *Coccoloba* sp. in Brazil.
Uredo coccolobae P. Henn. Powdery light-brown rust pustules on leaves of *C. [illegible]* and *C. [illegible]* in Brazil and Cuba. Also reported from Florida.
COCCOTHRINAX. See Palmae.
COCCULUS. Small trees grown for their handsome foliage and ornamental fruit.
Phomopsis cocculi Died. Light-colored spots with irregular dark borders on leaves of *C. [illegible]* in Java.
Phyllosticta cocculi Speg. Leaf spot on *C. [illegible]* in Argentina.
Phyllosticta thunbergii Miyake. Large, subcircular, irregular, yellowish-brown leaf spots on *C. thunbergii* in Japan.
COCHLEARIA. Small, hardy seaside herbs.
Puccinia cochlearinae Lindr. Powdery black rust pustules on leaf blades and petioles of *C. [illegible]* in Iceland, [illegible] in the Faroes in France and Greenland.
COCOS. See Palmae.
CODIAEUM PHYLLAUREA. Croton. Tropical shrubs grown for their variegated foliage.
Ascochyta banosensis Syd. On leaves of *C. [illegible]* in the Philippines.
Corticium kaironga (Cke.) v. Hoeh. See *Coffea*.
Corticium stevensii Burt. On leaves of *C. [illegible]* in Trinidad.
Fomes lamaensis Murr. See *Fomes*.
Glococystis variabilissima Arnaud. Large, irregular, reddish-brown leaf spots on *C. [illegible]* in Java.
Laestadia manginiana Speg. On leaves of *C. [illegible]* in Argentina.
Phyllosticta codiaei Thüm. On leaves of *C. [illegible]* in Portugal.
Phyllosticta peresii Syd. Leaf spot on *C. [illegible]* in the Philippines.
CODONOPSIS. Tender or hardy perennial herbaceous climbers.
Colletotrichum hortianum P. Henn. Spots on leaves of *C. [illegible]* in Formosa.
CODONOCHIS. See *Dendrobium*.
COELOGLOSSUM. See *Habenaria*.
COELOGYNE. See *Dendrobium*.
COFFEA. Tropical shrubs or small trees.
Antheostroma coffeae Penz. Sacc. Stromata resembling those of *Asterina* on leaves of *C. [illegible]* in Mexico.
Ascochyta coffeae P. Henn. Subcircular to irregular leaf spots with darker margins on *C. [illegible]* in Java.
Ascospora coffeae Penz. A wound parasite causing large areas of dead tissue on *C. [illegible]* trees in Java. [illegible] injuries from borers and [illegible].
Asterina mirabilis Rehm. See *Antheostroma*.
Cephalosporium sp. Occasionally causes brown leaf spots on *C. arabica* in Porto Rico.

COFFEA—Continued.

Cercospora coffeae Zimm. Subcircular dark-brown leaf spots on *C. arabica*, *C. laurina*, *C. robusta*, and *C. stenophylla* in Malaya and Tanganyika.

Cercospora coffeicola B. and C. Circular brown leaf spots, 6 to 10 millimeters in diameter, sometimes causing defoliation. Young twigs are also attacked to some extent. The disease is serious on the fruit, appearing first as small brown spots which enlarge to cover about half the fruit, generally the upper half. The diseased pulp turns black and dries down, adhering to the parchment, making the process of preparation more difficult, and lowering the grade of the final product. The disease occurs in practically all coffee-growing countries, including Porto Rico, Cuba, Jamaica, Trinidad, Surinam, Guatemala, Costa Rica, Brazil, Hawaii, Dutch East Indies, India, Java, New Caledonia, Queensland, the Philippines, and central Africa. The hosts are *C. arabica* and *C. liberica*.

Cercospora herrerana Farn. Circular chestnut-brown leaf spots with dark-purple margins on leaves and fruit of *C. arabica* in Mexico. Probably the same as the preceding species.

Cobweb disease. A Javan disease similar to the "koleroga" disease of coffee (*C. arabica*), but due to a different fungus. White, thick, branching fungus threads grow along the surface of twigs and leaves. Infected leaves turn yellow, wilt, and die, accompanied by die-back of the twigs.

Colletotrichum coffeanum Noack. Circular to irregular, large, brown, and finally gray spots on leaves of *C. arabica* in Porto Rico, Costa Rica, Brazil, central Africa, Madagascar, Reunion, Java, and India. A die-back of twigs is often associated with this or closely related species. The berries are also attacked, the spotting reducing the grade of infected material. *Colletotrichum incarnatum* Zimm. from Ceylon is probably not distinct.

Corticium koleroga (Cke.) v. Hoehn. (*Pellicularia koleroga* Cke.) The "koleroga" disease of coffee (*C. arabica*) occurs in Porto Rico, Cuba, Jamaica, Surinam, Venezuela, Guatemala, India, Java, Malaya, Queensland, Congo, and possibly in Brazil. The fungus threads grow up along the undersides of the twigs and out onto the lower leaf surfaces. The leaves turn black, wither up or drop, or remain suspended hanging by the fungus filaments. These strands are at first white and finally deep brown. Diseased twigs may die back for considerable distances. The berries are attacked to some extent, infected berries showing blackened grains. Additional hosts are *Citrus* spp., *Codiaeum variegatum*, *Cucumis sagaria*, *Garcinia mangostana*, *Hevea brasiliensis*, and *Luffa aegyptiaca*.

Corticium salmonicolor B. and Br. See Citrus.

Dictyothyriella mucosa Syd. Small, black, superficial fruiting bodies on *C. liberica* in Indo-China and the Philippines.

Diplodia cacaoicola P. Henn. See Theobroma.

Euryachora coffeicola Averna. Black stromata on leaves of *C. arabica* in Brazil.

Euryachora liberica Oud. A doubtful species on branches of *C. arabica* and *C. liberica* in Java.

Fomes lamaoensis Murr. See Hevea.

Fomes lignosus Klotzsch. See Hevea.

Fusarium coffeicola P. Henn. Found in connection with die back of *C. arabica* and *C. liberica* in central Africa.

Gloeosporium coffeanum Delacr. Anthracnose on leaves of *C. arabica* in Reunion and Ceylon. Probably the same as *Colletotrichum coffeanum* Noack.

Gloeosporium coffeicolum Tass. On *C. arabica* in Italy. Not distinct from *G. cingulata*.

Helminthosporium coffeae Mass. On leaves of *C. liberica* in Gold Coast Colony.

Helminthosporium ubangiense P. Henn. On leaves of *Coffea* sp. in tropical Africa.

Hemileia vastatrix B. and Br. This very destructive rust has destroyed the coffee industry of some countries and made it unprofitable in others. The characteristic yellow rust pustules develop during wet weather on the lower leaf surfaces, and more rarely on fruits and tips of young branches. Small yellow spots first appear, which increase in size, merge, and finally involve the entire leaf blade, which becomes brown and falls. Plants of all ages are attacked, defoliated, and killed within a season or two. *C. arabica* is very susceptible. Other species (*C. bengalensis*, *C. laurina*, *C. liberica*, *C. robusta*, *C. tragardi*, *C. borgesii*) vary in their resistance, some varieties being practically immune. The rust occurs in Burma, Ceylon, India, Indo-China, China, Malaya, Philippines, Union of South Africa, east Africa, Mauritius, Surinam, Java, Fiji, Samoa, Mauritius, Reunion, New Hebrides, New Caledonia, Gold Coast, and Madagascar. The disease does not occur in the western Tropics.

Laestadia coffeicola Speg. Circular whitish leaf spots on *C. arabica* in Costa Rica.

Leptosphaeria coffeigena (B. and C.) Sacc. On leaves of *C. arabica* in Brazil.

Leptosphaeria tonduzi Speg. On leaves of *Coffea* sp. in Costa Rica.

Metasphaeria biforeolata Speg. On *C. arabica* in Costa Rica.

Mosaic (*Phloem necrosis*). This disease, apparently of the group of infectious mosaics, attacks *C. liberica*, and occasionally *C. arabica*, in Surinam. In the acute form the leaves wilt rapidly and hang down. The roots become black and the entire plant is dead within a few weeks. In other cases the disease progresses more slowly. The leaves turn pale-green, then yellow, and finally fall, being replaced by small abnormal ones.

Muratella coffeae Bunting. Attacks *C. liberica* on Gold Coast Colony.

Mycosphaerella coffeae Noack. On leaves of *C. arabica* in Brazil.

Mycosphaerella coffeicola Cke. Subcircular, brown leaf spots with narrow gray margins on *C. arabica* in Jamaica, Ecuador, Venezuela, Brazil, Uganda, and India.

Ophionectria follicola A. Zimm. On leaves of *C. liberica* in Java.

Phoma coffeicola Tassi. On branches and twigs of *C. arabica* in Italy.

Phyllosticta camoensis Delacr. White thickened leaf spots on *C. camoensis* in tropical Africa.

Phyllosticta coffeicola Delacr. Circular whitish leaf spots on *C. arabica* in Malaya, Java, Mexico, Costa Rica, and Brazil. Probably synonymous with the Spegazzini species, which has priority.

Phyllosticta coffeicola Speg. On leaves of *Coffea* sp. in Costa Rica and Brazil.

Phyllosticta usteri Speg. Circular, then confluent, leaf spots on *C. arabica* and *C. robusta* in Ceylon and Brazil.

Placosphaeria citricola Berl. and Roum. On leaves of *C. arabica* in Indo-China.

Pleonectria coffeicola A. Zimm. On leaves of *C. liberica* in Java.

Ramularia goldiana Sacc. Subcircular zonate spots on leaves and stems of *C. arabica* in Brazil.

Rhizoctonia lamellifera Small. See Grevillea.

Rosellinia bunodes B. and Br. See Citrus.

Rosellinia pepo Pat. See Citrus.

Rostrella coffeae Zimm. On *C. arabica* in Guatemala.

Saccardinula tahitiensis Pat. On leaves of *Coffea* sp. in Tahiti.

Sclerotium sp. Causes a damping-off of coffee (*C. arabica*) seedlings in the Philippines.

Sclerotium coffeicolum Stahel. The "corcorum" or sclerotial disease of *C. abeocuta*, *C. arabica*, *C. excelsa*, and *C. liberica* in Surinam is characterized by dark-brown concentric spots on leaves and fruits. Small, greenish-brown or orange-brown sclerotia develop on the diseased areas.

Septoria berkeleyi Sacc. and Trav. Subcircular pale-brown leaf spots on *C. arabica* in South America.

COFFEA—*Continued.*

Septoria coffeae Wakef. On leaves of *C. arabica* in Uganda.

Septoria coffeicola P. Henn. Circular white leaf spots with dark-brown margins on *C. liberica* in Kamerun.

Stilbella flavida (Cke.) Lind. Circular dark-brown and finally light-brown leaf spots on *C. arabica*, *C. excelsa*, *C. gerrieri*, and *C. robusta* in Porto Rico, Jamaica, Cuba, British West Indies, Central America, Mexico, Trinidad, Ecuador, Venezuela, Colombia, British Guiana, Dutch Guiana, and Java. Other plants, including *Commelina* sp., *Bryophyllum pinnatum*, *Inga vera*, and *Mimosa pudica*, growing under or adjacent to coffee are attacked. The spots are from 8 to 12 millimeters in diameter, and are often so numerous as to destroy the leaves. On the upper surfaces of the spots and, to some extent, on the lower surfaces yellow, hairlike projections, 1 to 4 millimeters long, with basidia and hyaline spores are borne. Young twigs and the fruit are also attacked to some extent. The disease may be sufficiently serious to reduce yields as much as 75 per cent.

Trachysphaera fructigena Tehon and Stanton. The "mealy pod" disease attacks *C. liberica* and *T. excelsa* trees in Gold Coast colony. Coffee fruits of all ages are attacked, but the young berries are most subject to the disease. Their development is stopped and they shrivel up and become hard. Infected parts become brown in color at first, which is later covered by a white or pinkish-brown mealy appearance. On ripe pods small brown areas appear which increase rapidly until the entire fruit is affected. The same mealy layer ultimately appears.

Venturia coffeicola Ashmead. On leaves of *C. arabica* in Brazil.

COIX. Job's-tears. Tall, broad-leafed grasses with beadlike inflorescences.

Phyllachora coicis P. Henn. Shiny black elongate stromata on lower leaf surfaces of *C. agrestis* and *C. lachryma-jobi* in India, India-China, and the Philippines.

Sclerospora maydis Rac. & Butl. See *Zea*.

Uredo operta Syd. and Butl. Straw-colored rust sori on leaves of *C. lachryma-jobi* in India and Java.

Ustilago coicis Bref. Grain transformed into a black mass of smut spores, surrounded by a membrane and confined within the glumes. On *C. agrestis* and *C. lachryma-jobi* in India, Java, and China.

COLCHICUM. AUTUMN CROCUS. Autumn-flowering bulbous plants.

Ascochyta juelii Bub. Round or elliptical leaf spots on *C. autumnale* in Austria.

Cladochytrium maurysi Harkn. Small brown spots on leaves of *C. autumnale* in France.

Cylindrosporium colchici Pass. On leaves of *C. alpinum* and *C. officinale* in France and Holland.

Perisporium colchici Roth. Black superficial fungus on leaves of *C. autumnale* in Germany.

Phyllosticta latemarensis Kab. and Bub. Small irregular black, often confluent, leaf spots on *C. autumnale* in Italy.

Septoria colchici Pass. Long light-brown spots on leaves of *C. alpinum* and *C. officinale* in France, Italy, and Germany.

Septoria gallica Sacc. and Syd. Oval to elongate, often confluent, spots on leaves of *C. autumnale* and *C. officinale* in France and Austria.

Urocystis colchici Schlecht. Rab. Long rows of black, powdery streaks occur on the leaves of *C. autumnale*, *Allium cepa*, *A. magicum*, *A. rotundum*, *Bulbocodium vernum*, *Muscari comosum*, *M. racemosum*, *Narcissus* spp., *Perezia multiflora*, *Scilla bifolia*, and *Tulipa* spp. in England, Yugoslavia, Spain, and Dalmatia. A smut referred to this species occurs to a limited extent on the United States on *Polygonatum* spp. and *Veratrum* spp., but if the European and American forms are conspecific [illegible] has not been definitely proved.

Uromyces colchici Mass. Brown powdery rust pustules on both leaf surfaces of *C. autumnale*, *C. bivonae*, *C. speciosum*, and *C. spectabilis* in Great Britain.

COLEOSANTHUS. See Brickellia.

COLEUS. Showy-leafed herbs used as bedding plants.

Aphelenchus olesistus Ritz. Bos. See Begonia.

Meliola cavitensis Yates. Black superficial fungus patches on leaves of *Coleus* sp. in the Philippines.

COLLETIA. Spiny shrubs grown in warm regions or greenhouses.

Dothidella colletiae P. Henn. and Lind. Theiss. and Syd. On branches and cladophylls of *C. spinosissima* in Chile.

Montagnella curumamuel Speg. Black circular stromata on leaves of *C. cruciata* and *C. feroz* in Argentina.

Placostroma lorentzianum (Speg.) Theiss. and Syd. On branches of *C. feroz* in Argentina.

COLLOMIA. See Gilia.

COLOCASIA. DASHEEN. ELEPHANT'S-EAR. Yautia. Eddoe. Taro. Tropical aroids grown for their ornamental leaves (bedding plants) and for edible roots.

Cercospora caladii Cke. var. **colocasiae** v. Hoeh. Subcircular brown zoned leaf spots on *Colocasia* sp. in Samoa.

Heterosporium colocasiae Mass. On leaves of *Colocasia* sp. in Jamaica.

Mycosphaerella colocasiae K. Hara. Circular, then confluent, brown, zoned, more or less sunken leaf spots with dark-brown margins on *C. antiquorum* in Japan. The disease greatly reduces the [illegible]

Peronospora trichotoma Mass. This supposed species of downy mildew, said to cause a tuber rot of *C. esculenta* in the West Indies, is now considered a hyphomycete overgrowing *Phytophthora colocasiae*.

Phyllosticta colocasiae v. Hoeh. Circular brown zoned leaf spots on *Colocasia* sp. and *Dieffenbachia* sp. in Samoa and Porto Rico.

Phyllosticta colocasicola v. Hoeh. Probably not distinct from the preceding species.

Phytophthora colocasiae Rac. This downy mildew causes a serious blight of *C. antiquorum* in Java, Java, Ceylon, Formosa, Philippines, and Hawaii. Circular to oval dark-brown spots appear on the leaves and, becoming irregular, may occupy most of the leaf surface. They become yellowish to pale in color, and are often marginally zoned in shades of brown, green, and yellow. The petioles may be soft rotted, so that the leaves fall over. Infected tubers and the corms are attacked in turn, although at first plants are attacked while young no corms are formed. Where corms form they are [illegible]

COLQUHOUNIA. Showy plants grown for their whorls of scarlet and yellow flowers.

Puccinia leucophaea Syd. and Butl. Leaf rust on *C. coccinea* in India.

COLUTEA. BLADDER SENNA. Shrubs grown for their attractive flowers and ornamental bladder-[illegible]

Ascochyta colutear Lambe and Fautr. On leaves of *C. orientalis* in Yugoslavia.

Ovularia vogeliana Sacc. and Syd. White fungus layers over leaf surfaces of *C. arborescens* in [illegible]

Uromyces genistae-tinctoriae (Pers.) Wint. See Caragana.

COMARUM. Decumbent herbs. The genus is usually placed in *Potentilla*.
Mycosphaerella innumerella (Karst.) Starb. On leaves of *C. palustre* in Europe.
Phyllosticta argentinae Desm. See Potentilla.
Physoderma comari (Berk. and White.) Lagh. Black smut sori in leaves of *C. palustre* in Great Britain and Scandinavia.
Septogloeum comari Allesch. and Bres. Dull yellow leaf spots on *C. palustre* in Sweden, Denmark, Esthonia, and Germany.
Septoria comari Lasch. On leaves of *C. palustre* in Germany.
Venturia palustris Sacc. On leaves of *C. palustre* in Belgium and Germany.
COMBRETUM. Tropical shrubs and trees.
Hyphaster kutuensis P. Henn. Superficial black stromata on leaves of *C. baumii* in the Union of South Africa.
Phyllosticta combreticola P. Henn. Irregular ashen leaf spots on *C. argenteum* in Germany.
Uredo kampuluvensis P. Henn. See Baphia.
COMMELINA. Dayflower. Perennial or annual herbs.
Cercospora commelinae Kalchbr. and Cke. Circular, dull-brown leaf spots on *C. benghalensis* in the Union of South Africa.
Cylindrosporium kilimandscharicum Allesch. Small, definite, brown, often confluent leaf spots on *Commelina* sp. in Tropical Africa.
Illosporium commelinae Stevens. Circular dull-yellow leaf spots on *C. longicaulis* and *C. virginica* in Porto Rico.
Kordyana celebensis Racib. Causes leaf spots on *C. bengalensis* in Java.
Phyllosticta commelinicola Young. Indefinite leaf spots on *C. nudiflora* in Porto Rico.
Puccinia commelinae Holw. Brown rust pustules on brown irregular leaf spots on *Commelina* sp. in Mexico.
Stilbella flavida (Cke.) Lind. See Coffea.
Tilletia (?) commelinae Kom. Doubtful species of smut in ovaries of *C. communis* in Manchuria and Japan.
Uredo commelyneae Kalchbr. Leaf rust on *C. elegans* and *C. virginica* in Porto Rico, St. Croix, and Trinidad.
Uredo ochracea Diet. Brown rust pustules on leaves of *C. bengalensis*, *C. communis*, *C. longicaulis*, and *C. obliqua* in Brazil, India, Japan, Ceylon, and the Philippines.
Uredo pedicellata Rac. Rust on leaves and bracts of *Commelina* sp. in Java.
Uromyces commelinae Cke. Leaf rust on *C. bengalensis*, *C. communis*, *C. forskalii*, *C. longicaulis*, *C. nudiflora*, *C. subulata*, and *Tradescantia cumanensis* in the Union of South Africa, India, Japan, Portuguese East Africa, Uganda, Porto Rico, Cuba, Jamaica, Guatemala, and South America.
Uromyces tosensis P. Henn. Brown rust pustules on leaves of *C. communis* in Japan.
CONVALLARIA. Lily of the valley. Herbaceous perennials cultivated for their racemes of fragrant flowers.
Ascochyta majalis Massal. Causes red-brown oblong to irregular spots on leaves of *C. majalis* in Italy.
Dendrophoma convallariae Cav. Dark-red elongated spots are produced on the leaves of *C. majalis* in Great Britain, Denmark, Italy, and Germany.
Gloeosporium convallariae Allesch. On leaves of *C. majalis* in Germany.
Heterosporium ornithogali Klotzsch. Oval to irregular brown spots on the leaves of *Convallaria* sp. and other species of the family *Liliaceae* in New Zealand.
Lophodermium herbarum (Fr.) Fckl. On leaves of *C. majalis* in France, Belgium, Switzerland, Sweden, Finland, and Germany.
Mycosphaerella asteroma (Fr.) Lind. On leaves of *Convallaria* sp., *Maianthemum* sp. and *Polygonatum* sp. in Europe.
Mycosphaerella brunneola (Fr.) All. and Schnab. On leaves of *C. majalis* in Denmark, Belgium, and Austria.
Phyllachora melanoplaca Sacc. Forms black, shiny, slightly concave spots on the leaves of *Convallaria majalis*, *Veratrum album*, *V. nigrum*, and *V. viride* in Switzerland and Austria.
Sclerotium convallariae West. On leaves of *Polygonatum verticillatum* (*C. verticillata*) in Belgium.
Septoria brunneola (Fr.) Niessl. (*S. convallariae* West.) Causes brown leaf spots on *C. majalis* and *Polygonatum* sp. in Siberia, Great Britain, Belgium, Sweden, Italy, and Moravia. Probably the imperfect stage of *Mycosphaerella brunneola*.
Septoria majalis Aderh. Large brown spots without definite margins, often involving entire leaves of *C. majalis* in Germany.
Septoria subradians (Fr.) Karst. A leaf-spot disease of *C. majalis* in Denmark.
CONVOLVULUS. Bindweed. Annual and perennial climbing herbs, mostly weeds.
Aecidium congoanum P. Henn. Leaf rust on *Convolvulus* sp. in the Kongo.
Aecidium convolvulinum Speg. Leaf rust on *Convolvulus* sp. in Argentina.
Cercospora sorokinii Sacc. On leaves of *Convolvulus* sp. in central Asia.
Entyloma convolvuli Bres. Smut sori in circular to oblong brown leaf spots, on *C. soldanella* in Portugal.
Puccinia macrocephala Speg. See Ipomoea.
Septoria calystegiae West. Small subcircular brown leaf spots on *C. arvensis* and *C. soldanella* in Europe.
Septoria convolvulina Speg. Circular white leaf spots with reddish margins on *C. arvensis* in Argentina.
Septoria longispora A. Bond. Small circular brown to gray leaf spots on *C. arvensis* and *C. lineatus* in Russia.
Septoria obesispora Oud. Leaf spot on *C. sepium* in Holland.
Thecaphora hyalina Fingerh. A smut reducing ovaries of *C. arvensis*, *C. sepium*, and *Soldanella* sp. to brown, powdery, spore masses in Europe. What is apparently this species has been collected in California.
Uromyces gemmatus B. and C. Leaf rust on *Convolvulus* sp. in Cuba.
COPAIFERA. Brazilian trees, producing a balsam called *copaiba*.
Phyllachora copaiferae Speg. Black stromata on irregular brown leaf spots on *C. langsdorfii* in Paraguay and Brazil.
Uredo copaiferae P. Henn. Leaf rust on *Copaifera* sp. in Brazil.
COPERNICIA. See Palmae.
COPROSMA. Shrubs or small trees grown for their ornamental fruit and variegated leaves.
Phyllosticta coprosmae McAlp. Ashen leaf spots, with narrow, raised, dark-red margins on *Coprosma* sp. in Australia.
Puccinia coprosmae Cke. Rusty-brown rust pustules on irregular leaf spots on *C. billardieri*, *C. hirtella*, and *C. lucida* in New Zealand.
Septoria coprosmae Cke. On leaves of *Coprosma* sp. in New Zealand.

CORCHORUS. Jute. Shrubs or herbs, some species yielding fiber.

Corticium salmonicolor B. and Br. See Citrus.

Diplodia corchori Syd. The "black band" disease of jute (*C. capsularis* and *C. olitorius*) is serious in India. Dense black bands form on the stems of infected plants up to the height of 2 or 3 feet, the bark splits, and finally only the brown, dry fibers are left, the tissue between having decayed away. The leaves of infected plants turn yellow and drop.

Hymenula nigra Saw. On *Corchorus* sp. in Formosa.

Hypochnus centrifugus (Lév.) Ful. On *Corchorus* sp. in Formosa.

Macrophoma corchori Saw. Indefinite spots and cankers on stems of *Corchorus* sp. (jute) in Formosa, causing die-back. Considered serious.

Phyllosticta corchori Saw. On leaves of *Corchorus* sp. in Formosa.

Rhizoctonia sp. See Vigna.

CORDIA. Tropical shrubs and trees, some species cultivated for fruit and ornament.

Aecidium brasiliensis Diet. Leaf rust on large round yellow spots on *C. cylindrostachya, C. macrophylla, C. nodosa,* and *C. rothii* in Brazil, Trinidad, and India.

Aecidium cordiae P. Henn. Leaf rust on *C. bullata* and *C. urticifolia* in the Dominican Republic.

Alveolaria andina Lagh. Chestnut-brown rust pustules on yellow-brown circular leaf spots of *Cordia* sp. in Ecuador.

Alveolaria cordiae Lagh. Rust on sunken spots on leaf blades and petioles of *C. cylindrostachya, C. ferruginea, C. laxiflora,* and *C. riparia* in Costa Rica, Guatemala, Jamaica, Ecuador, and Colombia.

Dimerium stevensii Garm. Indefinite yellow spots on leaves of *C. corymbosa* in Porto Rico.

Guignardia javanica Koord. Indefinite dark-brown leaf spots on *C. suaveolens* in Java.

Helminthosporium cordiae Welw. and Curr. On leaves of *Cordia* sp. in west Africa.

Phyllachora caffra Syd. Black stromata on rust-brown indefinite leaf spots on *C. caffra* in the Union of South Africa.

Placosphaeria cordiae Allesch. Subcircular black stromata on leaves of *Cordia* sp. in Brazil.

Puccinia cordiae Arth. Brown rust pustules on leaves of *C. alliodora* and *C. gerascanthus* in Porto Rico and Guatemala.

Puccinia corticola Arth. and Rorer. Rust attacking leaves, twigs, branches, and trunks of *C. gerascanthus* in Trinidad. Large lesions are formed on trunks and branches.

Uredo cordiae P. Henn. A rust causing gall-like swellings on leaves and shoots and witches'-broom effect on *Cordia* sp. in Peru.

Uromyces cordiae P. Henn. Brown rust pustules on leaves of *Cordia* sp. in Brazil.

CORDYLINE. See Dracaena.

COREOPSIS. Annual or perennial herbs or shrubs, some species cultivated in flower gardens.

Puccinia coreopsidis Jacks. and Holw. Brown rust pustules on leaves of *C. mutica* (*C. mexicana*) in Guatemala.

Puccinia coreopsidis Wakef. Leaf rust on *Coreopsis* sp. in Uganda. The preceding species has priority.

CORIANDRUM. CORIANDER. Strong-smelling umbelliferous herbs the seeds of which are used in seasoning.

Protomyces macrosporus Ung. Galls up to half an inch long by an eighth of an inch wide are produced on flower stalks, petioles, and young stems of *Aegopodium podagraria, Carum carvi, Chaerophyllum hirsutum, Coriandrum sativum, Daucus carota, Heracleum sphondylium, Meum athamanticum, M. mutellina,* and *Pastinaca sativa* in Europe, north Africa, India, Japan, and Australia.

CORIARIA. Shrubs or herbs grown for their ornamental fruit.

Phyllosticta coriaricola Speg. Angular, then confluent, dull-brown leaf spots with purple margins on *C. ruscifolia* in Chile.

Pucciniastrum coriariae Diet. Yellow to brown rust pustules on leaves of *C. japonica* and *C. nepalensis* in India and Japan.

Septoria coriariae Pass. Irregular brown leaf spots on *C. myrtifolia* in Spain and Italy.

CORNUS. DOGWOOD. Woody plants grown for their attractive flowers and fruit.

Coryneum corni-albi (Roum.) Sacc. On leaves of *C. alba* and *C. mas* in France, Bohemia, Austria, and Germany.

Erysiphe tortilis (Wallr.) Fr. Powdery mildew on leaves of *C. alba* and *C. sanguinea* in Europe.

Helminthosporium phyllophilum Karst. On leaves of *C. alba* in Finland.

Phoma thallina Sacc. On stems of *C. sanguinea* in Europe.

Pucciniastrum corni Diet. Yellow to brown rust pustules on leaves of *C. kousa* and *C. officinalis* in Japan.

Septoria corni-maris Sacc. On leaves of *C. sanguinea* in northern Europe.

Sphaeropsis suspecta Vestreg. Stem canker of *C. sanguinea* in Russia.

COROKIA. Evergreen shrub.

Septoria corockeae P. Henn. Dull-brown spots, occupying large portions of leaf surfaces of *C. buddleyoides* in Germany.

CORONILLA. Crown vetch. Shrubs and herbs grown in gardens for their flowers.

Ascochyta emeri Sacc. Dirty-white, often marginal, leaf spots with red margins on *C. emerus* in Italy.

Cercospora ratuensis C. Mass. Small subcircular pale-gray leaf spots with rufous margins on *C. varia* in Italy.

Helminthosporium bornmuelleri P. Magn. On leaves of *C. coronata, C. montana, C. scorpioides,* and *C. vaginalis* in Spain, Dalmatia, and Austria.

Mycosphaerella ariadna (Sacc.) Lind. On leaves of *C. emerus* in Italy.

Peronospora coronillae Gäum. Downy mildew on leaves of *C. scorpioides* and *C. varia* in Dalmatia and Silesia.

Puccinia coronillae Wor. Leaf rust on *C. cappadocica* in Russia.

Ramularia coronillae Bres. Small pale-brown leaf spots on *C. varia* in Yugoslavia and Austria.

Septoria emeri Sacc. White leaf spots with dull-brown margins on *C. emerus* in Italy.

Uromyces anthyllidis (Grev.) Schroet. See Anthyllis.

CORREA. Australian shrubs.

Phyllosticta correae McAlp. Elongate brown leaf spots on *C. speciosa* in Australia.

Puccinia correae McAlp. Brown rust pustules on leaves of *C. lawrenciana* in Tasmania.

CORYDALIS. CAPNOIDES Ag. Hardy erect or prostrate herbaceous perennials.

Entyloma corydalis De By. Smut sori in white, then brown, leaf spots on *C. cava* and *C. solida* in Russia, France, Denmark, and Germany.

Entyloma corydalis-luteae Vogl. Smut sori in circular yellow-brown spots on leaves and stems of *C. lutea* in Switzerland and Italy.

Melampsora magnusiana G. Wagn. See Populus.

Peronospora bulbocapni Beck. Downy mildew on leaves of *C. ambigua, C. cava, C. fabacea,* and *C. laza* in Japan and Europe.

Urocystis corydalis Niessl. Smut sori in brown circular leaf spots on *C. cava* and *C. solida* in Bohemia,

CORYLUS. Hazelnut. Filbert. Shrubs grown for nuts and foliage.

Ascochyta coryli Sacc. and Speg. Subcircular to irregular white leaf spots on *C. avellana* in Italy.

Bacterium sp. A bacterial disease of *Corylus* is reported as serious in Oregon. It causes a blighting of buds and new shoots, a brown speckling of the leaves, a girdling and dying-back of smaller branches, and formation of large cankers on larger branches and trunks.

Bacterium coryli Brzez. This bacterium is reported as the cause of a canker disease of *C. avellana* and *C. colurna* in central Europe.

Cryptosporella anomala (Pk.) Sacc. The disease due to this fungus, known as "filbert blight," is serious in the eastern part of the United States on *C. avellana*, and an effort is being made to prevent its spread to the Pacific coast. The fungus is native on *C. americana*. Sunken cankers of varying size and shape occur on branches and trunks, girdling the stems and soon killing outright many plants, particularly those of the European varieties.

Labrella coryli (Desm. and Rob.) Sacc. Irregular rufous leaf spots on *C. avellana* in Great Britain and France.

Mamiania coryli (Batsch.) Ces. and De N. On leaves of *C. avellana*, *C. heterophylla*, and *C. rostrata* in Japan, Denmark, and Austria.

Nematospora coryli Pegl. Causes malformation of nuts of *Corylus* sp. in Italy.

Phyllohendersonia corylaria (Sacc.) Tass. On leaves of *C. avellana* in Italy.

Phytophthora syringae Kleb. See Syringa.

Pucciniastrum coryli Kom. Ochraceous rust pustules on leaves of *C. heterophylla* and *C. rostrata* in Russia, Manchuria, and Japan.

Septoria avellanae B. and Br. On leaves of *C. avellana* in Great Britain and Italy.

CORYNOCARPUS. Ornamental evergreen trees.

Gloeosporium intermedium Sacc. See Citrus.

Phyllosticta corynocarpi Alm. and Cam. On leaves of *C. laevigata* in Portugal.

Septoria corynocarpi Thuem. Circular to elliptical white leaf spots on *C. laevigata* in Portugal.

CORYPHA. See Palmae.

COSMOS. Annual or perennial herbs grown in flower gardens.

Entyloma holwayi Syd. Smut sori in circular to irregular yellow-brown, then deep-brown, leaf spots on *C. sulphureus* in Mexico.

Uromyces bidentis Lagerh. Brown rust pustules on leaves of *C. caudatus* and *Bidens* spp. in Porto Rico, Jamaica, and northern South America.

COSTUS. Perennial thick-rooted tropical herbs.

Cercospora costina Syd. Leaf spot on *C. speciosus* in the Philippines.

Dactylaria costi Sew. Leaf spot on *C. speciosus* in Japan.

Puccinia costi (P. Henn.) Syd. Powdery brown rust pustules on indefinite sunken yellow leaf spots on *C. pumilus* in Brazil.

Uredo costina Syd. Leaf rust on *C. speciosus* in the Philippines.

COTONEASTER. Shrubs grown for their ornamental red or black fruits and for the foliage.

Aecidium cunninghamianum Barcl. Leaf rust on *C. bacillaris* in India.

Coleopuccinia sinensis Pat. Brown rust pustules on leaves of *Cotoneaster* sp. and *Amelanchier* sp. in China.

Entomosporium mespili (DC.) Sacc. Brown leaf spots on *C. nigra*, *Eriobotrya japonica*, *Mespilus germanica*, and *Pyrus silvestris* in Europe and Argentina. Probably not distinct from *E. maculatum* Lév.

Fusicladium pyracanthae (Otth.) Rostr. On fruit and peduncles of *C. pyracantha* in Denmark and Russia. Probably the same as *F. pirinum*.

Gymnosporangium mespili (DC.) Kern. See Juniperus.

Phyllosticta cotoneastri Allesch. Small subcircular, often confluent, brown, then gray, leaf spots with red-brown margins on *Cotoneaster* sp. in Germany.

COTYLEDON. Succulent herbs or shrubs grown mostly for their oddity.

Aecidium umbilici Trotter. Leaf rust on *C. umbilicus* in Portugal.

Ascochyta cotyledonis H. Zimm. Large gray leaf spots with purple-black margins on *C. gibbiflora* in Austria.

Microsphaera umbilici Kom. Powdery mildew on leaves of *C. semenowii* in Turkestan.

Septoria dalmatica Jaap. Circular gray leaf spots on *C. chlorantha* in Dalmatia.

Septoria zimmermanni-hugonis Bub. Circular to elliptical brown leaf spots with gray margins on *C. desmetiana*, *C. gibbiflora*, and *C. pachyphytum* in Bohemia.

CRACCA. See Tephrosia.

CRASSULA. Fleshy-leaved greenhouse shrubs and herbs grown for the grotesque appearance of some species.

Aphelenchus olesistus Ritz. Bos. See Begonia.

Puccinia exanthematica McO. Leaf rust on *C. cordata* and *C. spathulata* in the Union of South Africa.

CRATAEGUS. Hawthorn. Trees grown for their flowers and decorative fruit.

Aecidium patulum Syd. Rust on leaf blades, petioles, and fruit of *C. coccinea* in India.

Ascochyta crataegi Fckl. On leaves of *C. oxyacantha* in Russia, Italy, and Germany.

Ascochyta crataegicola Allesch. On leaves of *C. oxyacantha* in Russia and Germany.

Ascochyta crus-galli P. Brun. Circular to subcircular white leaf spots with brown margins on *C. crus-galli* in France.

Ascochyta misera Oud. On leaves of *C. monogyna* in Holland.

Cercospora crataegi Sacc. and C. Mass. Small angular yellow leaf spots on *C. oxyacantha* in Italy.

Coryneum follicolum Fckl. Ochraceous leaf spots on *C. oxyacantha*, *Quercus* sp., *Rubus discolor*, and *R. fruticosus* in Argentina, Russia, Italy, and Germany. Reported from Indiana.

Exoascus crataegi (Sad.) Sacc. Causes a crumpling and red spotting of the leaves and sometimes a deformation of twigs of *C. monogyna*, *C. oxyacantha*, and *C. sanguinea* in Europe.

Fusicladium crataegi Aderh. (*Venturia crataegi* Aderh.) Black spots on fruit of *C. monogyna* and *C. oxyacantha* in Denmark and Germany.

Gymnosporangium mespili (D. C.) Kern. See Juniperus.

Gymnosporangium orientale Syd. Aecia on fruit and branches of *C. ararella* and *C. insigna* in Russia, Greece, Thessaly, Asia Minor, and Persia.

Monilia crataegi Died. Effuse brownish leaf spots on *C. oxyacantha* in Germany.

Mycosphaerella crataegi (Fckl.) Oud. On leaves of *C. monogyna* in Great Britain, Denmark, and Germany.

Mycosphaerella crataegicola (Fckl.) Bond. and Tranz. On leaves of *C. monogyna* and *C. sanguinea* in Russia.

Mycosphaerella oxyacanthae Jaap. On leaves of *C. oxyacantha* in Switzerland, Austria, and Germany.

Phleospora oxyacanthae (Kunze. and Schm.) Wallb. Crowded yellowish leaf spots on *C. oxyacantha* in Russia, Great Britain, Italy, and Germany. "Hawthorn leaf scorch."

Phyllosticta casinalbensis D. Sacc. White leaf spots on *C. azarolus* in Italy.

CRATAEGUS—Continued.
Phyllosticta michaliorsköensis Elenn. and Ohl. Leaf spots on *C. sanguinea* in Russia.
Phyllosticta monogyna Allesch. On leaves of *C. monogyna* and *C. ozyacantha* in Russia.
Phyllosticta phaca Sacc. On leaves of *C. ozyacantha* in Moravia.
Phytophthora syringae Kleb. See Syringa.
Septoria crataegicola Bond. and Tranz. On leaves of *Crataegus* sp. in Russia.
Septoria crataegophila Ranoj. On *C. monogyna* in Yugoslavia.
Stereum purpureum Pers. See Prunus.
Trichoseptoria fructigena Maubl. See Cydonia.
Uncinula prunastri (DC.) Sacc. See Prunus.
CRATAEVA. Tropical trees and shrubs.
Aecidium crataevae Syd. Rust pustules on large, circular to subcircular, sunken, yellow-brown leaf spots on *C. religiosa* in India.
Fusidium crataevae B. and Br. On leaves of *C. roxburghii* in Ceylon.
Napicladium crataevae Syd. On leaves of *C. religiosa* in India.
CREPIS. Annual, biennial, or perennial herbs, some species grown in flower gardens.
Bremia ovata Saw. Downy mildew on leaves of *C. japonica* in Japan and Formosa.
Entyloma calendulae (Oud.) De By. See Calendula.
Entyloma crepidicola Trot. and var. **crepidis-rubrae** Jaap. A smut forming galls on the fibrous roots and rhizomes of *C. bulbosa* and *C. rubra* in Italy and Dalmatia. The variety has been described as a new species under the name *Tolyposporium crepidis-rubri* (Jaap) Cif.
Phragmidium eximia Bub. Leaf rust on *C. grandiflora* in Yugoslavia.
Phyllosticta crepidis-paludosae Petr. Subcircular to irregular, ocher-brown leaf spots on *C. paludosa* in Austria.
Phyllosticta eximia Bub. Angular dark-brown to black leaf spots on *C. viscidula* in Yugoslavia.
Protomyces crepidicola Buren. On leaves of *C. biennis* in central Europe.
Protomyces crepidis (Jaap.) Sacc. and Trott. Small circular dirty yellow-gray then yellow-brown pustules on *C. aurea*, *C. biennis*, *C. incarnata*, and *C. montana* in Switzerland and Austria.
Protomyces crepidis-paludosae Buren. On leaves of *C. paludosa* in Switzerland.
Protomyces inouei P. Henn. Effuse, elongate sori in peduncles of *Crepis* sp. in Japan.
Puccinia alpestris Syd. Yellow and brown rust pustules on leaves of *C. alpestris* in Switzerland and Austria.
Puccinia aschersoniana P. Henn. Brown rust pustules on leaves of *C. rueppellii* in Arabia.
Puccinia barkhousiae-rhoeadifolia Bub. Yellow and dark brown to black rust pustules on leaves of *C. foetida* and *C. rhoeadifolia* in Bohemia and Spain.
Puccinia crepidicola Syd. Brown powdery rust pustules on leaves of *Crepis* spp. in Europe and Asia Minor.
Puccinia crepidis Schroet. Leaf rust on *Crepis* spp. in Europe.
Puccinia crepidis-aureae Syd. Leaf rust on *C. aurea* in Switzerland and Austria.
Puccinia crepidis-blattarioides Kasl. Leaf rust on *C. albida*, *C. alpestris*, *C. blattarioides*, *C. tectus*, and *C. virens* in Switzerland and Spain.
Puccinia crepidis-grandiflorae Hasl. Rust on leaves of *C. bellidifolia*, *C. grandiflora*, *C. nicaeensus*, and *C. tectus* in Switzerland.
Puccinia crepidis-japonicae Diet. Powdery, chestnut-brown rust pustules on leaves of *C. japonica* in Japan.
Puccinia crepidis-leontodontoidis R. Maire. Powdery, cinnamon-brown to dark-brown rust pustules on leaves of *C. leontodontoides* in Corsica.
Puccinia crepidis-pygmaeae Gaill. Dark-brown rust pustules on leaf blades and petioles of *C. pygmaea* in France and Austria.
Puccinia crepidis-sibiricae Lindr. Brown powdery rust pustules on leaves of *C. sibirica* in Siberia, Russia, and Finland.
Puccinia crucheti Hasl. Rust on leaves of *C. succisaefolia* in Switzerland.
Puccinia intybi (Juel.) Syd. Leaf rust on *C. praemorsa* in Great Britain, Sweden, Esthonia, Denmark, and Germany.
Puccinia major Diet. Cinnamon to dark-brown rust pustules on leaves of *C. conyzifolia*, *C. grandiflora*, and *C. paludosa* in Europe.
Puccinia praecox Bub. Powdery yellow and brown rust pustules on leaves of *C. biennis*, *C. foetida*, and *C. rubra* in Russia, Yugoslavia, Switzerland, Bohemia, Denmark, and Austria.
Puccinia scaliana Syd. Leaf rust on *C. biennis* and *C. bursifolia* in Spain and Sicily.
Puccinia silvatica Schroet. See Taraxacum.
Ramularia eximia Bub. Angular to irregular yellow leaf spots on *C. grandiflora* and *C. viscidula* in Yugoslavia.
Septoria crepidis Vestergr. Irregular, often confluent, leaf spots on *C. biennis* and *C. tectorum* in Russia, Esthonia, and Sweden.
Stagonospora crepidis Höll. Circular, dull-brown leaf spots with black margins on *C. biennis* in Hungary.
Taphrina rhaetica Volk. On leaves of *C. blattarioides* in Switzerland.
Uredo crepidis-integrae Lindr. Leaf rust on *C. integra*, *C. japonica*, *C. keiskeana*, and *C. platyphylla* in Japan and Australia.
Uredo crepidis-japonicae Lindr. Leaf rust on *C. japonica* in Ceylon and Australia.
CRINUM. Large, showy, flowering bulbs.
Aecidium crini Kalchbr. Leaf rust on *C. longifolium* (*C. capense*) and *C. cooperi* in the Union of South Africa.
Aecidium mangaranga P. Henn. Rust on large, effuse, yellow leaf spots on *Crinum* sp. in the Union of South Africa.
Gloeosporium crini Sacc. Leaf anthracnose of *Crinum* sp. in Italy.
Mycosphaerella crini Siem. On leaves of *Crinum* sp. in the Caucasus.
Phyllosticta crini Sacc. Subcircular yellow leaf spots on *Crinum* sp. in Italy.
Phyllosticta crinicola Siem. On leaves of *Crinum* sp. in southern Russia.
Septoria crini Tassi. On leaves of *C. asiaticum* in Italy.
CROCUS. Low, spring and autumn flowering bulbs.
Bacillus croci Miz. This bacterium causes a serious rot of *Crocus* spp. in Japan, attacking bulbs, roots, sheaths, leaves, and flower stalks. *Narcissus* sp., *Hyacinthus* sp., and *Allium* spp. have been infected by inoculation. The lower leaves become rotten, turn yellow above, and are readily detached from the corm, which is in turn soft-rotted.
Perisporium crocophila (Mont.) Sacc. Brown spots appear on corms of *C. sativus* in France, increasing in size, and finally bring about rot of the corm. A black fungus layer covers the rotted areas.
Sclerotinia tuliparum (Wakk.) Rehm. See Tulipa.
Uromyces croci Pass. Elongate, powdery brown rust pustules on both leaf surfaces of *C. biflorus* and *C. susianus* in Russia, Italy, France, and Austria.

CROTALARIA. Rattlebox. Sunn-hemp. Annual leguminous herbs and shrubs, some species grown as green-manure crops.

Aecidium crotalariae P. Henn. Leaf rust on *C. engleri, C. grandibracteata,* and *Crotalaria* sp. in Uganda and west Africa.

Aecidium crotalaricolum P. Henn. Rust on dull-brown leaf spots on *Crotalaria* sp. in Brazil.

Aecidium dielsii P. Henn. Ochraceous rust pustules on leaves of *Crotalaria* sp. in Tanganyika.

Cercospora crotalariae Sacc. Leaf spots on *C. striata* in Ceylon.

Colletotrichum crotalariae Petch. Anthracnose on *C. striata* in Ceylon.

Mycosphaerella crotalariae Petch. Pale-brown zoned leaf spots on *C. striata* in Ceylon.

Phyllosticta crotalariae Sacc. On leaves of *C. striata* and *Crotalaria* sp. in Uganda and Ceylon.

Porla hypobrunnea Petch. See Hevea.

Uredo crotalariae Diet. Ochraceous rust pustules on leaves of *C. incana* and *C. vitellina* in Brazil.

Uredo crotalaricola P. Henn. Leaf rust on *C. lachnoclada* in central Africa.

Uredo harmsiana P. Henn. Leaf rust on *C. lanceolata* in the Union of South Africa.

Uredo theresiae Neger. Brown rust pustules on leaves of *C. anagyroides* in Colombia.

Uromyces decoratus Syd. Powdery brown to black rust sori on yellow leaf spots on *C. albida, C. ferruginea, C. juncea,* and *C. vitellina* in India, Ceylon, and Costa Rica.

Uropyxis crotalariae Arth. Brown rust pustules on leaves of *C. maypurensis* and *Crotalaria* sp. in Guatemala.

CROTON. Shrubs and trees, a few species of economic importance.

Cercospora crotonophila Speg. On leaves of *Croton* sp. in Paraguay.

Cercospora manaoensis P. Henn. On leaves of *Croton* sp. in Brazil.

Cercospora tiglii P. Henn. Circular, black leaf spots on *C. tiglium* in the Philippines.

Cercosporella crotonis P. Henn. Leaf spots, often marginal, causing curling on *Croton* sp. in Brazil.

Gloeosporium crotonis Delacr. Anthracnose of *Croton* sp. in France.

Phakopsora crotonis (Cke.) Arth. Leaf rust on *C. gossypifolius* and *C. hirtus* in Trinidad.

Phyllachora crotonis (Cke.) Sacc. "Tar spot" on leaves of *C. arborescens, C. chamaedryfolius, C. floribundus,* and *C. silvaticus* in South America and the Union of South Africa.

Phyllachora globispora Speg. Black stromata on leaves of *Croton* sp. in Argentina.

Phyllachora tragiae (B. and C.) Sacc. Circular black stromata on leaves of *C. arborescens, C. chamaedryfolium, C. flavens,* and *C. lucidus* in Brazil, Porto Rico, French Guiana, Argentina, and Brazil.

Phyllosticta portoricensis Young. Circular yellowish leaf spots on *C. lucidus* in Porto Rico.

Schroeteriaster argentinensis (Speg.) Syd. Rust on leaf blades, petioles, and stems of *C. hirtus* in Argentina.

Schroeteriaster mexicanus (Arth.) Syd. Cinnamon-brown rust pustules on leaves of *C. calvescens* in Mexico.

Schroeteriaster stratosus (Cke.) Syd. Powdery brown rust pustules on leaves of *C. oxypetalus* and *C. sylvaticus* in the Union of South Africa and the Congo.

Septoria crotonis Bres. On leaves of *C. macrostachya* and *Croton* sp. in Denmark and Abyssinia.

Uredo crotonicola P. Henn. Leaf rust on *C. glandulosus* and *Croton* sp. in Brazil and Argentina.

Uredo crotonis P. Henn. Leaf rust on *Croton* sp. in Brazil.

CRUCIANELLA. Crosswort. Hardy rock plants.

Puccinia crucianellae Desm. Brown rust pustules on leaves and stems of *C. angustifolia, C. herbacea,* and *C. maritima* in Tripoli, Palestine, Portugal, Spain, Italy, and France.

Puccinia monopora Lindr. Rust on leaves and stems of *C.* (*Asperula*) *glomerata* in Greece.

Puccinia syriaca Syd. Powdery dark-brown rust pustules on leaves and stems of *C. macrostachya* and *C. syriaca* in Syria.

Uredo mediterranеae Lindr. Rust on stems of *C. maritima* in France and Portugal.

CRYPTOGRAMMA. Rock brake. Hardy subalpine ferns.

Hyalopsora cryptogrammes Diet. Brown rust pustules on leaves of *C. japonica* in Japan.

CRYPTOMERIA. Ornamental coniferous trees.

Fusarium blasticola Rostr. See Pinus.

Helicobasidium mompa Tanak. See Morus.

Valsa cryptomeriae Kitajima. The "blister" disease of seedlings of *C. japonica* is characterized by blackish-brown or reddish-brown areas on the stems which become sunken and cracked. These cankers cause hypertrophy and bending of diseased seedlings. The disease occurs in Japan.

CRYPTOSTEGIA. Rubber vine. Tropical climbers.

Ramularia cryptostegiae Pim. On leaves and fallen seeds of *Cryptostegia* sp. in Ireland.

CRYPTOSTEMMA. Composite herbs.

Ascochyta cryptostemmatis McAlp. Irregular, deep brown leaf spots on *C. calendulaceum* in Australia.

Septoria perforans McAlp. Circular, then confluent, pale gray-brown leaf spots on *C. calendulaceum* in Australia.

CUCUMIS. Melon. Cucumber. Herbaceous vines cultivated for their fruit.

Ascochyta melonis Poteb. On fruit, stems, and leaf blades and petioles of *C. melo* and *C. sativus* in Russia.

Corticium koleroga (Cke.) v. Hoeh. See Coffea.

Corynespora melonis (Cke.) Sacc. (*Cercospora melonis* Cke.). Small pale-green translucent spots on leaves and young fruits, becoming gray, on *C. melo* and *C. sativus* in Great Britain, Sweden, Russia, Denmark, and Germany.

Helminthosporium cucumerinum Jarb. Pale-yellow leaf spots up to 1.5 cm. in diameter, with definite margins, on *C. sativus* in south Russia. Infected plants are so weakened that death finally ensues.

Hypochnus cucumeris Frank. This fungus attacks its hosts at the ground level, rotting the stems and forming a thin, grayish film of hyphae. Diseased plants turn yellow and collapse. The hosts are *Amorphophallus konja, Arachis hypogaea, Cinnamomum camphora, Citrullus citullis, C. vulgaris, Cucumis melo, C. sativus, Daucus carota, Morus alba, Phaseolus mungo, P. vulgaris, Sesamum indicum, Soja max, Trifolium pratense, Vicia faba,* and *Vigna sinensis* in Japan, Great Britain, Denmark, and Germany.

Puccinia cucumeris P. Henn. Yellow and black rust pustules on leaves of *C. ficifolius* in Abyssinia.

Rhizoctonia sp. See Vigna.

Scolecotrichum melophthorum Prill. and Delacr. Sunken brown spots on leaves and young stems, causing a rot of *C. melo, C. sativus,* and *Cucurbita vulgaris* in Great Britain, Italy, France, Belgium, Holland, and Russia.

Ustilago cucumeris Graff. A doubtful species of root smut on *C. sativus* in Great Britain.

CUCURBITA. Pumpkin. Squash. Gourd. Cucurbitaceous vines.

Cercospora cucurbiticola P. Henn. Circular brown leaf spots on *Cucurbita* sp. in Brazil.

Scolecotrichum melophthorum Prill. and Delacr. See Cucumis.

CUDRANIA. Woody foliage plants used for hedges.
Hymenopsis cudraniae Mass. On leaves of *C. javanensis* in Queensland, India, and the Philippines.
Melasmia cudraniae (Mass.) v. Hoeh. On *C. javanensis* in the Philippines.
Physopella sinense Syd. Leaf rust on *Cudrania* sp. in China.
Rhytisma hypoxanthum B. and Br. Black, irregular stromata on leaves of *C. javanensis* in Queensland.
Uredo cudraniae Petch. Leaf rust on *C. javanensis* in Ceylon.
CUMMINGIA. Tender summer-blooming bulbs.
Phyllosticta santiaguina Speg. Linear, red leaf spots on *C. campanulata* in Chile.
CUNILA. STONE MINT. Low-tufted hardy perennials.
Puccinia cunilae Diet. Brown rust pustules on leaves of *C. angustifolia* in Brazil.
Puccinia fuscata Arth. and Holw. Leaf rust on *C. leucantha* in Guatemala.
CUNNINGHAMIA. BELIS Ag. CHINA FIR. Coniferous trees cultivated for their handsome foliage.
Mycosphaerella cunninghamiae Wor. On leaves of *C. sinensis* in Russia.
CUNONIA. Trees and shrubs.
Cercospora capensis (Thuem.) Sacc. Subcircular, depressed, black leaf spots on *C. capensis* in the Union of South Africa.
UPHEA. PARSONSIA Ag. Tropical and subtropical herbs and shrubs.
Didymariopsis cuphaeicola Speg. Circular, then irregular, leaf spots on *C. mesostemum* in Argentina.
Puccinia cupheae Holw. Dark-brown rust pustules on leaves of *C. aequipetala*, *C. cyanea*, *C. hookeriana*, *C. nitidula*, *C. procumbens*, and *C. squamuligera* in Mexico and Guatemala.
Puccinia jaliscensis Holw. Brown leaf rust on *C. cyanea*, *C. hookeriana*, *C. nitidula*, and *C. squamilifera* in Mexico.
Septoria cupheae Tassi. Brown leaf spots with wide rosy margins on *C. llavea* in Italy.
Uredo cupheae P. Henn. Brown rust pustules on confluent, violet-brown leaf spots on *C. micrantha*, *C. parsonsia*, and *C. serphyllifolia* in Porto Rico, Colombia, and Brazil.
CUPRESSUS. CYPRESS. Ornamental evergreens and timber trees.
Gymnosporangium cunninghamianum Barcl. Brown, slightly raised areas on smaller branches of *C. torulosa* in India. The aecial stage of this rust occurs on leaves of *Pyrus variolosa*.
CURATELLA. Small trees or scandent herbs.
Phyllosticta curatellae P. Henn. Circular red-brown to dull-brown leaf spots on *C. americana* in PERU.
CURCULIGO. Stemless herbs of palmlike habit.
Puccinia curculigonis Racib. Circular to irregular dark-brown spots, in which appear brown powdery rust pustules, on both leaf surfaces of *C. latifolia*, *C. orchioides* and *C. recurvata* in Java, India, and the Philippines.
CURCUMA. Turmeric. Tropical gingerlike plants.
Taphrina maculans Butl. Numerous dirty-yellow to bay, often confluent, spots on both leaf surfaces of *C. amada*, *C. angustifolia*, *C. longa*, *Hedychium* sp., *Zingiber casumunar*, *Z. mioga*, and *Z. zerumbet* in Japan and India.
CYANOTIS. Creeping or ascending woody herbs much like *Tradescantia*.
Uredo davaoensis Syd. Powdery brown rust pustules on leaves of *C. tuberosa* and *C. zeylanica* in India, Ceylon, and the Philippines.
Uromyces commelinae Cke. See Commelina.
CYATHEA. TREE FERN.
Griggsia cyathea Stev. Numerous irregular slightly elevated black spots on leaves of *C. arborea* in Porto Rico.
Pachypatella alsophilae (Rac.) Theiss. and Syd. On leaves of *C. caudata* and *Alsophila contaminans* in Java and the Philippines.
Phyllachora hieronymi P. Henn. Shiny black stromata on leaves of *C. dregei* in Nyassa and the Union of South Africa.
CYBELE. See Stenocarpus.
CYCAS. FERN PALM. SAGO PALM. Cycads.
Cladosporium cycadis Marc. Small circular yellow leaf spots with dark margins and with a greenish mold forming beneath, on *C. revoluta* in Italy.
Dendrophoma clypeata D. Sacc. Irregular, brown leaf spots on *C. revoluta* in Italy.
Hendersonia togniniana Pöll. On leaves of *C. revoluta* in Italy.
Pestalozzia cycadis Allesch. On leaves of *C. revoluta* in Monaco.
Phyllosticta cycadina Pass. Brown leaf spots on *C. revoluta* in Italy.
Septoria montemartinii Pöll. On leaves and petioles of *C. revoluta* in Italy.
CYCLAMEN. Herbaceous plants with flat tubers or corms, grown under glass for their flowers.
Phyllosticta cyclaminella Bub. On leaves of *C. neapolitanum* in Yugoslavia.
Phyllosticta cyclaminis Brun. Circular brown spots finally destroying plants of *C. europaeum* and *C. persicum* in France and Italy.
Septoria cyclaminis Dur. and Mont. Large irregular smoky leaf spots with rufous margins on *C. europaeum*, *C. hederifolium*, and *C. repandum* in Algeria, Dalmatia, and Italy.
CYCLANTHERA. Annual and perennial herbs.
Cercospora cucubitina Speg. Small, circular to irregular, then confluent, white leaf spots on *Cyclanthera* in Brazil.
CYDISTA. Ornamental vines cultivated for their flowers. (See also Bignonia).
Puccinia adenocalymnatis (P. Henn.) Arth. Leaf rust on *C. aequinoctialis* in Cuba and Trinidad.
Puccinia aequinoctialis Holw. Cinnamon-brown rust pustules on circular, yellow leaf spots on *C. aequinoctialis* in Cuba.
Puccinia cuticulosa (E. and E.) Arth. Brown leaf rust on *C. aequinoctialis* in Porto Rico, Cuba, Brazil, and Nicaragua.
CYDONIA. QUINCE. Fruit trees.
Cercospora cydoniae Rangel. On leaves of *C. oblonga* (*C. vulgaris*) in Brazil.
Cercospora tomenticola (Thuem.) Sacc. On leaves of *C. vulgaris* in Brazil and Italy.
Exoascus bullatus (B. and Br.) Fckl. See Pyrus.
Gymnosporangium koreaense (P. Henn.) Jacks. See Juniperus.
Gymnosporangium mespili (DC.) Kern. See Juniperus.
Gymnosporangium photiniae (P. Henn.) Syd. See Juniperus.
Gymnosporangium spiniferum Syd. Rust on leaves of *C. vulgaris* in Japan.
Helicobasidium mompa Tan. See Morus.
Mycosphaerella pomacearum Sacc. See Malus.
Ovularia necans (Pass.) Sacc. Large spots causing premature leaf fall of *C. vulgaris* and *Mespilus germanica* in Italy and France.

CYDONIA—Continued.

Phyllosticta cydoniae (Desm.) Sacc. Circular to irregular brown leaf spots on *Chaenomelea japonica* (*Cydonia japonica*) and *C. vulgaris* in Italy, France, and Denmark.

Phyllosticta cydoniaecola Allesch. Large irregular leaf spots on *C.* (*Chaenomelea*) *japonica* in Italy and Germany.

Phyllosticta cydonilicola P. Henn. Circular, then confluent, dull-brown leaf spots on *C. vulgaris* in Brazil.

Phyllosticta velata Bub. Circular to ellipsoid, often confluent, yellow-brown to red-brown leaf spots on *C. vulgaris* in Hungary.

Ramularia tenuior Fautr. and Brun. On leaves of *C. vulgaris* in France.

Sclerotinia linhartiana Prill. and Delacr. Brown leaf spots, twig die-back, and brown rot of fruit of *C. vulgaris* in Europe.

Sclerotinia mespili Woron. See Mespilus.

Septoria cydoniae Fckl. On leaves of *Chaenomelea japonica* (*Cydonia japonica*) and *C. vulgaris* in Italy, Austria, and Germany.

Septoria cydonicola Thuem. Pale-gray, irregular leaf spots on *C. vulgaris* in Italy and Malta.

Trichoseptoria fructigena Maubl. Causes a brown rot of fruit of *C. vulgaris*, *Crataegus* sp., and *Malus* (apple) in France and Germany.

CYMBIDIUM. See Orchidaceae.

CYMBOPOGON. CITRONELLA GRASS. LEMONGRASS. Oil-producing grasses.

Cerebella nardi Butl. Black fungus areas in ovaries of *C. nardus* in India.

Ophiodothis sclerotica (Pat.) P. Henn. Black sclerotia in inflorescences of *C. nardus* and *C. schoenanthus* in India and Indo-China.

Phyllachora andropogonis Karst. and Har. See Andropogon.

Puccinia cesatii Schroet. See Andropogon.

Puccinia cymbopogonis Mass. Leaf rust on *C. citratus* in Uganda.

Puccinia nakanishikii Diet. See Andropogon.

Uredo cymbopogonis-polyneuri Petch. Leaf rust on *C. polyneuros* in Ceylon.

Uromyces schoenanthi Syd. Yellow to brown rust pustules on *C. schoenanthus* in India.

Ustilago bengalensis Syd. and Butl. Linear dark-brown smut sori in ovaries of *C. pendulus* in India.

Ustilago mildbraedii Syd. Powdery black smut masses replacing the ovaries of *C. schoenanthus* in tropical Africa.

Ustilago nardi Syd. Dark-brown elongate smut sori in ovaries of *C. nardus* in India.

Ustilago schoenanthi Syd. and Butl. Smut sori in inflorescences of *C. schoenanthus* in India.

Ustilago spermoidea B. and Br. Elongate smut sori in inflorescences of *C. martii*, *C. nardus*, and *C. venustus* in Ceylon.

CYNANCHUM. MOSQUITO TRAP. Herbaceous or semiwoody twiners.

Cercospora bellynckii (West.) Sacc. On leaves of *C. acutum* and *C. vincetoxicum* in Italy, Belgium, China, and Spain.

Cercospora cynanchi Syd. On leaves of *C. caudatum* in Japan.

Cercospora miurae Syd. On leaves of *C. acutum* in Japan.

Cercospora punctiformis Sacc. and Roum. Yellow leaf spots on *C. acutum* in Russia and Algeria.

Cronartium flaccidum (Alb. and Schw.) Wint. See Paeonia.

Melampsora cynanchi Thuem. Leaf rust on *C. sibiricum* in Siberia.

Mycosphaerella albescens Rabh. On leaves of *C. vincetoxicum* in Europe.

Phyllosticta asclepiadearum West. and var. **minor** R. Rosai. Gray-white leaf spots on *C. vincetoxicum* and *Hoya carnosa* in Italy and Victoria.

Phyllosticta atro-maculans Speg. Large pale-yellow areas on leaves of *C. vincetoxicum* in Italy.

Phyllosticta cynanchi Brun. Circular to angular white leaf spots with brown margins on *C. acutum* in France.

Phyllosticta viridi-tingens Ferr. Small subcircular leaf spots on *C. vincetoxicum* in Italy.

Phyllostictiella vincetoxici (Sacc.) Tass. Sinuous white leaf spots with red margins on *C. vincetoxicum* in Denmark and Italy.

Puccinia cynanchi Lagh. Leaf rust on *C. parviflorum* and *Cynanchum* sp. in Martinique and Venezuela.

Septoria asclepiadea Sacc. On leaves of *C. vincetoxicum* and *Marsdenia erecta* in Italy, France, and Denmark.

Septoria cynanchica Sacc. On stems of *C. vincetoxicum* in Belgium.

Septoria maculosa Lév. Black marginal leaf spots on *C. erectum* in France.

Septoria rajkoffi Bub. On leaves of *C. acutum* in Bulgaria.

Septoria vincetoxici (Schub.) Awd. On leaves of *C. nigrum* and *C. vincetoxicum* in Russia and Denmark.

CYNARA. Artichoke. Cardoon. Perennial herbs.

Ascochyta cynarae Maffei. Circular ochraceous to gray-white leaf spots on *C. scolymus* in Italy.

Phyllosticta cynarae West. Subcircular zoned ashen-brown leaf spots on *C. scolymus* in Argentina, Italy, and Belgium.

Ramularia cynarae Sacc. Circular to irregular, gray blotches on leaves of *C. scolymus* and *Silybum marianum* in Argentina, French North Africa, Denmark, Russia, Italy, France, and Portugal. The leaves are browned and destroyed by the fungus, and heads fail to form.

Septoria cardunculi Pass. On leaves of *C. cardunculus* in Italy.

CYNODON. CAPRIOLA Ag. BERMUDA GRASS. Lawn and pasture grasses.

Balansia sp. On *C. dactylon* in the Union of South Africa.

Cerebella cynodontis Syd. Black, corrugated fungus masses in ovaries of *C. dactylon*, *Panicum distachyum*, and *P. prostratum* in Ceylon, India, the Philippines, and the Union of South Africa.

Phyllachora cynodontis (Sacc.) Niessl. (*Physalospora cynodontis* Del.) Black stromata on leaves of *C. dactylon* and *C. incompletus* in Japan, China, the Philippines, India, French North Africa, Egypt, Union of South Africa, Madeira, Yugoslavia, Bulgaria, Italy, Spain, France, Austria, and Germany.

Puccinia cynodontis Desm. Rust on leaves, sheaths, and culms of *C. dactylon* in Porto Rico, Guatemala, Ceylon, China, Japan, India, Turkestan, Persia, Australia, Algeria, Asia Minor, Russia, Spain, Portugal, France, Yugoslavia, Bulgaria, Italy, Austria, and Germany. Also reported from California and Florida.

Puccinia varians Diet. Powdery black rust pustules on leaves of *C. dactylon* in Japan.

Septoria cynodontis Fckl. On leaves of *C. dactylon* in Italy and Germany.

Ustilago cynodontis P. Henn. Black powdery smut masses destroying the inflorescences of *C. dactylon* and *C. olabratus* in Japan, China, Australia, Uganda, French North Africa, Abyssinia, Bulgaria, Portugal, Spain, Italy, and India.

Ustilago dregeana Tul. Black smut sori deforming peduncles and inflorescences of *C. dactylon* in the Union of South Africa.

Ustilago paraguariensis Speg. Smut in culms of *C. dactylon* in France, Brazil, and Paraguay.

CYNOSURUS. CRESTED DOG-TAIL. Ornamental lawn and pasture grasses.
Phyllosticta cynosuri Gz. Frag. Leaf spots on *C. echinatus* in Spain.
Uromyces phyllachoroides P. Henn. Brown to black rust sori on leaves of *C. cristatus*, *C. echinatus*, and *C. elegans* in French North Africa.

CYPERUS. FLAT SEDGE. Papyrus. Aquatic or moist-land plants.
Ascochyta papyricola Tass. On leaves of *C. papyrus* in Italy.
Cintractia cyperi-polystachyi P. Henn. Smut in peduncles of *C. polystachyus* in the Philippines.
Cintractia javanica Racib. Black powdery smut sori in inflorescences of *Cyperus* sp. in Java.
Cintractia perihebuyensis Speg. Smut in peduncles of *C. distans* in India and Ceylon.
Cintractia tangensis P. Henn. Black powdery smut masses in leaf axils of *Cyperus* sp. in Tanganyika.
Cintractia togoensis P. Henn. Smut on *Cyperus* sp. in central Africa.
Helminthosporium cyperi Bacc. On leaves of *C. dichostachys* in Abyssinia.
Kawakamia cyperi (Miy. and Ideta.) Miy. Downy mildew causing browning of leaves and stems of *C. tegetiformis*, one of the matting sedges in Japan. The disease has also been found in Texas on imported material.
Phyllachora cyperi Rehm. Black stromata on leaves and culms of *C. giganteus* and *C. longus* in Porto Rico, Spain, and Portugal. Also reported from Wisconsin.
Puccinia abrepta Kern. Leaf rust on *C. ferax* in Costa Rica.
Puccinia antioquiensis Mayor. Leaf rust on *C. diffusus* in Panama, Trinidad, and Colombia.
Puccinia conclusa Thuem. Black rust pustules on leaves of *C. longus* in Portugal.
Puccinia juncelli Diet. Leaf rust on *C. serotinus* in Japan.
Puccinia philippinensis Syd. Brown leaf rust on *C. compressus*, *C. rotundus*, and *C. polystachyus* in Japan and the Philippines.
Puccinia subcoronata P. Henn. Ochraceous to dark-brown rust pustules on leaves of *C. malaccensis* in Brazil and Japan.
Schinzia aschersoniana Magn. (*S. cypericola* [Magn.] De T.) Attacking roots of *C. flavescens* in Algeria.
Uredo cyperi P. Henn. Rust on leaves and stems of *Cyperus* sp. in Abyssinia.
Uredo cypericola P. Henn. Leaf rust on *C. capitatus*, *C. distans*, *C. rotundus*, and *C. tuberosus* in India and tropical Africa.
Uredo philippinensis Syd. Cinnamon-brown rust pustules on leaves of *C. polystachyus* and *Cyperus* sp. in China and the Philippines.

CYPHOMANDRA. TREE TOMATO. Trees or shrubs, one species cultivated for its fruit.
Ascochyta cyphomandrae Petch. Subcircular black, then gray, leaf spots on *C. betacea* in Ceylon.
Cronartium uleanum Syd. Leaf rust on *Cyphomandra* sp. in Brazil.

CYPRIPEDIUM. LADY'S-SLIPPER. MOCCASIN FLOWER. Hardy terrestrial orchids. See Orchidaceae.

CYRTOPODIUM. See Orchidaceae.

CYSTOPTERIS. (*Filix.*) BLADDER FERN.
Aphelenchus olesistis Ritz. Bos. See Begonia.

CYTISUS. BROOM. Shrubs cultivated for their profuse yellow or purple flowers.
Ascochyta cytisi Lib. On *C. laburnum* (*Laburnum vulgare*) in Switzerland.
Ascochyta laburni Sacc. On branches of *C. laburnum* (*Laburnum vulgare*) in France and Italy. *A. laburni* Kab. and Bub. is described on *C. laburnum* from Bohemia.
Ceratophorum setosum Kirchner. Small brown, then dark-brown to black, spots enlarging rapidly and often confluent to form large, irregular, often concentric, ringed areas on leaves of *Cytisus* sp., *Lupinus cruikshanksii*, *L. mutabilis*, *L. polyphyllus*, and other species in Japan and Europe.
Cucurbitaria laburni Pers. On twigs of *Cytisus* sp. in Europe.
Heterosporium laburni Oud. Brown leaf spots on *C. laburnum* in Denmark and Holland.
Leptosphaeria corrugans Rehm. Subcircular, oblong, or irregular yellow leaf spots with red-brown margins on *C. alpinus* (*Laburnum alpinum*) in Austria.
Marsonia carnea Vestegr. Large circular leaf spots on *C. laburnum* (*Laburnum vulgare*) in Europe.
Mycosphaerella laburni (Pass.) Lind. On leaves of *C. laburnum* and *C. ramentaceus* in Italy and Dalmatia.
Peronospora cytisi Rostr. Downy mildew, causing brown leaf spots and destroying young plants of *C. alpinus* (*Laburnum alpinum*) and *C. laburnum* in Europe.
Phyllosticta coniothyrioides Sacc. Subcircular ashen leaf spots on *C. laburnum* and *C. nigricans* in France and Denmark.
Phyllosticta cytisella Sacc. Angular white leaf spots on *C. nigricans* in Italy.
Phyllosticta cytisi Desm. Subcircular dull-brown leaf spots on *C. laburnum* in France, Great Britain, Italy, Belgium, and Austria.
Phyllosticta cytisorum Pass. On leaves of *C. laburnum* in France.
Phyllosticta laburni Oud. Irregular gray-white leaf spots on *C. laburnum* in Holland.
Phyllosticta laburnicola Sacc. On leaves of *C. laburnum* in Italy.
Septoria cytisi Desm. Numerous small subcircular white leaf spots with brown margins on *C. alpinus* *C. capitatus*, *C. hirsutus*, *C. laburnum*, *C. nigricans*, and *Genista tinctoria* in Italy, France, Switzerland, Denmark, and Austria.
Septoria laburni Pass. On leaves of *C. sessilifolius* in Italy.
Uromyces fulgens (Hazsl.) Bub. Brown rust pustules on leaves and branches of *C. austriacus* and *C. hirsutus* in Yugoslavia, Bulgaria, Italy, Austria, and Germany.
Uromyces genistae-tinctoriae (Pers.) Wint. See Caragana.
Uromyces pallidus Niessl. Yellow-brown rust pustules on leaves of *C. capitatus*, *C. hirsutus*, and *C. prostratus* in Europe.

DACTYLIS. ORCHARD GRASS. Forage grasses.
Aplospora lloydii (Crouan) Sacc. See Holcus.
Aplanobacter rathayi Sm. A viscid lemon-yellow slime envelops the upper leaves, stems, and inflorescences of *D. glomerata* in Denmark and Austria, causing a dwarfing and premature drying out of infected plants.
Cladochytrium graminis Büsg. See Festuca.
Dilophia graminis (Fckl.) Sacc. See Triticum.
Leptosphaeria nigrans (Desm.) Ces. and De N. See Aira.
Mycosphaerella recutita (Fr.) Johans. See Aira.
Ovularia pulchella (Ces.) Sacc. and var. **lolii-italici** Sacc. Red leaf spots on *D. glomerata* and *Lolium italicum* in France and Italy.
Phyllachora bromi Fckl. See Bromus.
Phyllosticta dactyloides Gz. Frag. On leaves of *D. glomerata* in Spain.
Puccinia dactylidina Bub. Powdery brown to black rust pustules on leaves of *D. glomerata* in India, Hungary, and Bohemia.
Septoria culmifida Lind. See Phleum.
Sphaerodothis dactylidis (Delacr.) Theiss. and Syd. Black stromata on leaves of *D. glomerata* in France and Spain.

DACTYLIS—Continued.

Uromyces dactylidis Otth. Yellow and brown to black rust pustules on leaves of *D. glomerata* and *Ranunculus* spp. in Europe and New Zealand. Reported from Virginia.

Ustilago dactylidis Maire. Smut on *D. glomerata* in French North Africa.

DAEDALACANTHUS. Tropical shrubs with blue or rose-colored flowers.

Isariopsis acanthacearum Cke. Leaf spot of *D. nervosus* and *Eranthemum* sp. in Great Britain.

Puccinia polystegia Syd. Brown rust pustules on brown sunken leaf spots on *D. nervosus* in China.

DAEMONOROPS. See Palmae.

DAHLIA. Stout perennial herbs with fleshy roots and profuse autumn bloom.

Aecidium dahliae Syd. Leaf rust on *D. variabilis* in Mexico.

Bacillus dahliae Hori. and Bakis. Bacterial rot of *Dahlia* sp. in Japan.

Cercospora sp. A leaf spot of *D. variabilis* in Argentina.

Cercospora grandissima Rangel. Leaf spot on *D. variabilis* in Brazil.

Coleosporium dahliae Arth. A rust producing yellow powdery pustules on the undersides of leaves of *D. variabilis* in Mexico.

Cytospora dahliae Peyl. On stems of *Dahlia* sp. in Bohemia.

Entyloma calendulae dahliae Sternon. Minute spots appear on the leaves at flowering time. These spots are at first few in number, 5 to 7 millimeters in diameter, limited by the principal veins and visible only on the upper leaf surfaces. The spots soon enlarge, becoming confluent, brown in color with dark-brown margins, and finally involve the entire leaf area as well as the petioles. The original dead areas fall out, giving a shot-hole appearance to the leaves. The loss of all or most of the leaf area reduces or even entirely prevents the development of flowers. On *Dahlia* (cult.) in Belgium. See, also, Calendula.

Entyloma dahliae Syd. Smut sori in pale circular to elliptical leaf spots on *D. variabilis* in the Union of South Africa.

Ophiobolus georginae (Fekl.) Sacc. On stems of *Dahlia* sp. in Germany.

Phoma fuscata Sacc. On stems of *Dahlia* sp. in Germany.

Phyllosticta dahliaecola Brun. Produces large brown spots on leaves of cultivated varieties of *D. variabilis* in France, Switzerland, Italy, Austria, and Germany.

Sporotrichum dahliae Thuem. On stems of *D. variabilis* in Siberia.

Urophlyctis sp. Causes a leaf spot of *Dahlia* [cult.] in Kenya Colony.

Verticillium dahliae Kleb. Causes a wilt disease of the *Dahlia* in Germany. The fungus is said to differ from V. *alboatrum*, the cause of a serious wilt disease of the potato and other economic plants. The symptoms of the *Dahlia* disease are typical of wilt diseases, namely, a preliminary drooping of the leaves which finally involves the entire plant. The disease can be carried in the roots.

DALBERGIA. Rosewood. Tropical trees and shrubs.

Catacauma dalbergiicola (P. Henn.) Theiss. and Syd. Black stromata on leaves of *D. acanthophylla*, *D. armata*, *D. ferruginea*, and *D. variabilis* in Brazil, the Union of South Africa, and the Philippines.

Endodothella natalensis Doidge. On leaves of *D. armata* in the Union of South Africa.

Fomes caryophylli (Rac.) Bres. See Cinnamomum.

Fomes lamaoensis Murr. See Hevea.

Phyllachora dalbergiae Niessl. Black stromata on leaves of *D. ferruginea*, *D. lactuca*, *D. sissoo*, and *D. variabilis* in India, the Philippines, and Brazil.

Phyllachora lactea Theiss. and Syd. Black stromata on red-brown leaf spots on *D. lactea* in Tanganyika.

Phyllachora perforans (Rehm.) Sacc. and Syd. Tar spot on leaves of *D. acanthophylla* in Brazil.

Phyllachora spissa Syd. Circular shiny black stromata on brown leaf spots on *D. sissoo* in India.

Phyllosticta dalbergiae Syd. Circular to irregular, often confluent, leaf spots with pale purple margins on *Dalbergia* sp. in Brazil.

Phyllosticta dalbergiicola Syd. Circular pale-brown leaf spots on *D. variabilis* in Brazil.

Phyllosticta nivea Syd. Subcircular brown leaf spots on *Dalbergia* sp. in Brazil.

Puccinia periodica Racib. Leaf rust on *Dalbergia* sp. and *Derris* sp. in Java.

Sphaerophragmium dalbergiae Diet. Yellow to brown rust pustules on leaves of *D. amerimum* and *D. armata* in Cuba and Natal.

Uredo dalbergiae P. Henn. Ochraceous rust sori on *D. variabilis* in Brazil.

Uredo mararyensis P. Henn. Leaf rust on *Dalbergia* sp. in Brazil.

Uredo nidulans Syd. Powdery ochraceous rust pustules on *D. foliolosa* in Bolivia.

Uredo sissoo Syd. and Butl. Powdery, yellowish rust pustules on leaves of *D. sissoo* in India and Ceylon.

Uromyces achrous Syd. Leaf rust on *D. sissoo* in India.

A serious canker disease due to an as yet undetermined fungus, attacks *D. latifolia* in Java.

DALEA. PAROSELA Ag. Leguminous herbs and small shrubs, grown for their various-colored flowers.

Puccinia daleae Diet. and Holw. Cinnamon-brown to black rust pustules on leaves of *D. citriodora* in Mexico.

DALECHAMPIA. Climbing tropical shrubs, cultivated for their ornamental bracts.

Aecidium cornu-cervi P. Henn. A rust, forming woody galls up to 10 centimeters in diameter on branches of *Dalechampia* sp. in Brazil.

Aecidium dalechampicola P. Henn. Leaf rust on *Dalechampia* sp. in Brazil.

Cacoma theissenii Syd. Leaf rust on small subcircular spots on *Dalechampia* sp. in Brazil.

Didymella sphaerelloides Sacc. and Syd. Indefinite pale brown sunken leaf spots on *D. ficifolia* in Brazil.

DAMMARA. See Agathis.

DAPHNE. Ornamental woody plants with handsome foliage and sweet-scented flowers.

Colletotrichum daphnes-ponticae Siem. Anthracnose on *D. pontica* in Caucasia.

Dothidella mezerci (Fr.) Theiss. and Syd. On stems of *D. alpina* in Europe.

Gloeosporium mezerei Cke. Anthracnose on leaves on *D. mezereum* in Great Britain and Australia.

Marssonia daphne (Rob. and Desm.) Magn. Irregular greenish, then dull-brown, leaf spots on *D. mezereum* in France, Italy, Switzerland, Denmark, Austria, and Holland.

Marssonia obtusata Maubl. Small raised ochraceous, then dull dark-brown leaf spots on *D. laureola* in France.

Mycosphaerella gnidii Maire. On leaves of *D. gnidius* in Algeria.

Mycosphaerella laureolae Desm. Subcircular, yellowish leaf spots on *D. laureola* in France, Switzerland and Germany.

Phyllohendersonia daphnes (Pass.) Tass. On leaves of *D. indica* in France.

Phyllosticta carniolica Voss. On leaves of *D. blagayana* in Austria.

Phyllosticta daphnes ponticae Siem. Leaf spot on *D. pontica* in Caucasia.

DAPHNE—Continued.
Phyllosticta laureolae Desm. Subcircular to irregular leaf spots on *D. laureola* in Denmark, France, and Portugal.
Septoria daphnes Desm. Irregular indefinite greenish leaf spots on *D. mezereum* in France and Germany.
Uredo daphnicola Diet. Brown leaf rust on *Daphne* sp. in Hongkong.
DAPHNIPHYLLUM. Broadleafed evergreen, hardy or semitropical shrubs, and small trees.
Leptothyrium yoshinagai P. Henn. On leaves of *D. glaucescens* in Japan.
Mycosphaerella daphniphylli Syd. and Hara. Circular to irregular spots on leaves of *D. glaucescens* in Japan.
DATISCA. Tall perennial herbs.
Coleosporium datiscae Tranzsch. Golden rust pustules on leaves of *D. cannabina* in Kashmir and Caucasia.
Phyllosticta datiscae Syd. Irregular, then confluent, often marginal, dull brown leaf spots on *D. cannabina* in Russia.
DATURA. ANGEL'S-TRUMPET. JIMSON WEED. Rank-growing annual or perennial herbs or shrubs mostly weeds.
Ascochyta daturae Sacc. Subcircular gray-white leaf spots on *D. arborea* and *D. stramonium* in Russia, Denmark, Italy, and Portugal.
Septoria daturae Speg. Definite circular gray-white leaf spots on *D. inermis* and *D. stramonium* in Argentina and Italy.
DAUCUS. CARROT. Annual and biennial herbs.
Aecidium carotinum Bub. Leaf rust on *D. carota* in Bohemia.
Aphelenchus modestus J. M. Attacks the roots of *D. carota* in Europe.
Cercosporella pastinacae Karst. See Pastinaca.
Erysiphe taurica Lév. See Althaea.
Helicobasidium mompa Tan. See Morus.
Hypochnus cucumeris Frank. See Cucumis.
Leptosphaeria rostrupii Lind. Gray-brown cankers on the roots, which work up into the stems of *D. carota* in Sweden and Denmark.
Mycosphaerella sagedioides (Wint.) Lind. On stems of *Daucus* sp. and *Dipsacus* sp. in Switzerland.
Phyllachora pastinacae Rostr. (*Septoria pastinacae* West.) Leaf spot and stem canker of *D. carota* in Great Britain and Denmark.
Protomyces macrosporus Ung. See Coriandrum.
Ramularia pastinacae Bub. See Pastinaca.
Septoria carotae P. Nag. On leaves of *D. carota* in Russia.
Septoria daucina Brun. Subcircular to irregular, then confluent, brown leaf spots on *D. carota* in France.
DEERINGIA. Climbing herbs or subshrubs.
Aecidium deeringiae Cke. and Mass. Leaf rust on *D. celosioides* in Australia.
Puccinia calosperma Syd. and Butl. Rust on leaf blades, petioles, stems, and flowers of *D. celosioides* in India.
Uromyces deeringiae Syd. Brown leaf rust on *D. indica* in Java, Japan, and the Philippines.
DELPHINIUM. LARKSPUR. Hardy herbs cultivated for their flowers.
Cercospora delphinii Thuem. Dull-yellow subcircular leaf spots on *D. elatum* in Siberia. Also reported from Colorado.
Coleosporium martianoffianum Syd. Golden-yellow rust pustules on leaves of *D. intermedium* in Siberia.
Phyllosticta ajacis Thuem. Irregular, often marginal, gray-white leaf spots on *D. ajacis* in Austria.
Rhizoctonia destruens Tassi. See Solanum.
Ramularia delphinii Jaap. Leaf spot on *D. elatum* in Switzerland.
Septoria staphysagriae Wint. Circular to irregular definite brown leaf spots on *D. staphysagria* in Portugal and Italy.
DENDROBIUM. See Orchidaceae.
DENDROCALAMUS. See Bambuseae.
DENDROPANAX. Tropical trees and shrubs.
Mycosphaerella didymopanicis Miles. Light-brown to gray, circular, sometimes confluent, leaf spots with narrow orange-brown margins on *D. arboreum* in Porto Rico.
Phyllosticta araliana Young. Leaf spot on *D. arboreum* in Porto Rico and Cuba.
DENTARIA. TOOTHWORT. Small, early-flowering herbs.
Phyllosticta dentariae Kab. and Bub. Greenish, then pale-brown to white, irregular leaf spots on *D. enneaphylla* in Bohemia.
Peronospora dentariae macrophyllae Gäum. Downy mildew on leaves of *D. macrophylla* in Japan.
Puccinia dentariae (Alb. and Schw.) Fckl. Leaf and stem rust on *Dentaria* spp. in Europe. Also reported from Oregon.
DERRIS. Tall, tropical trees or climbers.
Cercospora pumila Syd. On leaves of *Derris* sp. in the Philippines.
Diorcidium koordersi Wurth. Leaf rust on *D. elliptica* in Java.
Dothidella derridis (P. Henn.) Theiss. On leaves of *Derris* sp. and *D. elliptica* in central Africa and the Philippines.
Fomes lignosus Klotzsch. See Hevea.
Hapalophragmium derridis Syd. Brown rust pustules on leaves of *D. uliginosa* in Ceylon and central Africa.
Phyllachora affinis Theiss. and Syd. Black stromata on leaves of *D. philippinensis* in the Philippines.
Phyllachora derridis Syd. Black stromata on indefinite brown leaf spots on *D. glabrata* in Angola.
Phyllachora luzonensis P. Henn. See Milletia.
Phyllachora ramosii (P. Henn.) Theiss. and Syd. Numerous, black stromata on small, leaf spots on *Derris* sp. in the Philippines.
Phyllachora yapensis (P. Henn.) Syd. Black circular to irregular stromata on leaves of *D. diadelpha*, *D. elaptica*, and *D. philippinensis* in the Philippines, Java, and the island of Yap.
Phyllosticta derridis P. Henn. Circular or effuse, pale-brown, marginal leaf spots on *Derris* sp. in the Congo.
Placosphaeria derridis P. Henn. Circular leaf spots on *Derris* sp. in the Congo.
Placosphaeria merrillii P. Henn. Circular effused yellow or dull brown leaf spots on *Derris* sp. in the Philippines.
Puccinia periodica Racib. See Dalbergia.
Triphragmium pulchrum Racib. Brown rust pustules on leaves of *D. elliptica* in Java.
Uredo derridis P. Henn. Leaf rust on *D. bantamensis* in Java.

DESCHAMPSIA. See also Aira.
Tilletia schenchiana P. Henn. Smut sori deforming and destroying the ovaries of *D. antarctica* in Kerguelen Island.
DEUTZIA. Ornamental shrubs, grown for their showy, white or bluish flowers.
Aecidium deutziae Diet. Leaf rust on *D. gracilis*, *D. scabra*, *D. sieboldiana*, and *D. staminea* in Japan and India.
Ascochyta deutziae Bres. Irregular, dull-yellow leaf spots on *D. scabra* in Germany.
Cylindrosporium deutziae Syd. Indefinite confluent yellow-brown leaf spots on *D. scabra* in Japan.
Leptosphaeria dichroa Pass. On branches of *D. scabra* in Italy.
Mycosphaerella deutziae Syd. On leaves of *D. lemoinei* in Germany.
Phyllosticta deutziicola Petr. Large irregular brown leaf spots on *Deutzia* sp. in Bohemia and Austria.
Septoria phyllostictoides Sacc. Indefinite gray-white leaf spots on *D. scabra* in France.
DIANELLA. Tender perennial rhizomatous plants.
Uredo dianella Diet. Leaf rust on *D. ensifolia* and *D. nemorosa* in China, Hongkong, Ceylon, Java, and Japan.
DIANTHUS. PINK. CARNATION. Herbs cultivated for their showy flowers.
Ascochyta dianthi (A. and S.) Berk. Large, subcircular, brown patches on leaves of *D. caryophyllus*, *Lychnis* sp. and *Saponaria* sp. in Great Britain, Italy, Holland, and Germany.
Fusarium udum Butl. This fungus causes a wilt of seedlings of *Dianthus* sp., *Anacardium occidentale*, *Antirrhinum* sp., *Eriobotrya japonica*, *Eugenia jambos*, and *Grevillea robusta* in Uganda. See also Cajanus.
Gloeosporium dianthi Cke. Small circular purple confluent leaf spots with brown centers on *D. caryophyllus* in Great Britain.
Phomopsis caryophylli Grove. On calyces, peduncles, and stems of *D. caryophyllus* in Japan and Great Britain.
Phyllosticta dianthi West. Irregular gray-white blotches on leaves of *D. barbatus* in Belgium and France.
Phyllosticta dubia Sacc. On leaves of *D. chinensis* (*D. sinensis*) in Malaya.
Placosphaeria stellariae (Lib.) Sacc. See Stellaria.
Pseudodiscosia dianthi Host. and Laub. Large brown, then light gray spots on leaves, flower stalks and stems of *D. caryophyllus* in Germany.
Puccinia dianthi-japonici P. Henn. Brown rust pustules on circular yellow leaf spots on *D. japonicus* and *D. nipponicus* in Japan.
Puccinia fastidiosa Sacc. and De T. Powdery, ochraceous rust pustules on leaves and stems of *D. chinensis* in Siberia.
Ramularia dianthi Lind. Large leaf spots with brown margins on *D. carthusianorum* in Germany.
Septoria carthusianorum West. Irregular, dull-yellow spots on calyces of *D. carthusianorum* in Belgium.
Septoria caryophylli Scalia. Irregular elongate ochraceous spots with dull brown margins on leaves and stems of *D. caryophyllus* in Italy.
Septoria dianthicola Sacc. On leaves of *D. barbatus*, *D. caryophyllus*, and *Tunica prolifera* in Italy, Switzerland, and Portugal.
Septoria dianthophila Speg. and f. **hispanica** Gz. Frag. On leaves of *D. caryophyllus* and *D.* (*Tunica*) *prolifera* in Brazil and Spain.
Septoria sinarum Speg. Large subcircular white leaf blotches on *D. chinensis* in Italy and Great Britain.
Uredo dianthicola Har. Leaf rust on *D. caryophyllus* in France. (Doubtful species.)
Urocystis purpurea Hazsl. Purple masses of smut spores replacing the ovaries of *D. deltoides* and *D.* (*Tunica*) *prolifera* in Hungary.
Uromyces formosus Syd. Brown rust pustules on stems and leaves of *D. crinitus*, *D. libanotis*, and *D. macranthoides* in Persia.
DIAPENSIA. Small, compact, tufted, woody perennials.
Phyllosticta diapensiae Pat. Leaf spots on *D. lapponica* in China.
Physalospora diapensiae Rehm. On leaves of *D. lapponica* in Lapland.
Septoria diapensiae Karst. On leaves of *D. lapponica* in Lapland.
DIASIA. See Melasphaerula.
DICENTRA. BIKUKULLA. Ag. BLEEDINGHEART. Herbaceous perennials grown for their flowers and cut foliage. Sometimes called Dielytra or Diclytra.
Ascochyta dicentrae Oud. On branches of *D. spectabilis* in Holland.
DICHAEA. See Orchidaceae.
DICHORISANDRA. Tropical perennial herbs, grown for their handsome flowers and foliage.
Colletotrichum dichorisandrae Rangel. Anthracnose on *D. thyrsiflora* in Brazil.
Uromyces dichorisandra P. Henn. Leaf rust on *Dichorisandra* sp. in Brazil.
DICHROA. Hydrangealike shrubs.
Endophyllum dichroae Rac. Rust causing hypertrophy of leaves of *D. cyanitis* in Java.
DICLIPTERA. Annual or perennial herbs or subshrubs with red or blue bracted flowers.
Puccinia diclipterae Syd. Brown rust on leaves of *D. longiflora* in Formosa.
Uromyces tweediana (Speg.) Arth. Yellow-brown to chestnut-brown rust pustules on leaves and stems of *D. maculata*, *D. squarrosa*, *D. tweediana*, and *Diclipteria* sp. in Mexico, Brazil, Argentina, Abyssinia, and India.
DICTAMNUS. GAS PLANT. Semiwoody plants.
Ascochyta nobilis Kab. and Bub. Circular to angular, often confluent, yellow-white or gray leaf spots with red margins on *D. albus* (*D. fraxinella*) in Russia and Bohemia.
Colletotrichum dictamni Höll. Circular to irregular dull-brown leaf spots on *D. albus* in Hungary.
Septoria dictamni Fckl. Discolored leaf patches on *D. albus* (*D. fraxinella*) in Russia and Italy.
DICTYOSPERMA. See Palmae.
DIEFFENBACHIA. TUFT ROOT. Large-leafed tropical aroids.
Gloeosporium thuemenii Sacc. See Anthurium.
Phyllosticta colocasiae v. Hoch. See Colocasia.
DIERAMA. South African cormous plants with large spikes of flowers.
Puccinia dieramae Syd. Leaf rust on *D. ensifolia* in the Union of South Africa.
DIERVILLA. BUSH HONEYSUCKLE. Ornamental deciduous shrubs with showy flowers. Certain Asiatic species sometimes placed under Weigela.
Ascochyta diervillae Kab. and Bub. Circular to irregular, then confluent, brown leaf spots on *D. lonicera* (*D. canadensis*) in Bohemia.
Ascochyta weigeliae Sacc. and Speg. Angular gray-white leaf spots on *D. florida* (*D. rosea*) in Italy.
Phyllosticta weigeliae Sacc. and Speg. Gray-white leaf spots on *D. florida* (*D. rosea*) in Denmark, Italy and France.

DIERVILLA—Continued.

Phyllosticta weigeliina Bub. and Kab. Leaf spots on *D. florida* in Bohemia.

Ramularia weigeliae Speg. On leaves of *D. florida* in Italy.

Septoria weigeliae Kab. and Bub. Leaf spots on *D. florida* in Bohemia.

DIGITALIS. FOXGLOVE. Hardy herbaceous perennials with long racemes of flowers. The leaves of some species used medicinally.

Ascochyta digitalis Fckl. Purplish leaf spots on *D. purpurea* in Portugal and Germany.

Gloeosporium digitalidis Rostr. Large dull-brown leaf spots on *D. purpurea* in Denmark.

Mycosphaerella mariae Sacc. and Bomm. On leaves and stems of *D. ferruginea* and *D. lutea* in Italy.

Peronospora digitalidis Gäum. Downy mildew on leaves of *D. ambigua*, *D. lutea*, and *D. purpurea* in central Europe.

Phyllosticta digitalis Bell. On leaves of *D. lutea* and *D. purpurea* in Italy and Alaska.

Ramularia variabilis Fckl. Irregular brown leaf spots starting on the basal leaves and progressing upward on *D. purpurea* in Italy, Denmark, Austria, and Germany. The medicinal value of the leaves is reduced or destroyed.

Septoria digitalis Pass. Irregular, dull-brown leaf spots on *D. ferruginea*, *D. grandiflora*, *D. lanata* and *D. lutea* in Russia, the Balkans, Italy, Great Britain, and Austria.

DILLENIA. Tall tropical trees.

Cercospora dilleniae Petch. Gray-brown leaf spots on *D. retusa* in Ceylon and India.

DINOCHLOA. See Bambuseae.

DIOCLEA. Tender woody twiners.

Phyllachora dioclease P. Henn. Black stromata on circular to irregular brown leaf spots on *Dioclea* sp. in Brazil.

DIOSCOREA. YAM. AIR POTATO. Tropical climbers with edible roots.

Bagniopsis dioscoreae Wakef. Produces a reduction in length of the internodes and in size of the leaves, giving a witches'-broom effect on *D. prehensilis* in Nigeria. The stromata are produced on stems and petioles, but not on the leaf blades which are, however, chlorotic.

Catacauma glaziovii (P. Henn.) Theiss. and Syd. Circular, shiny black stromata on leaves of *D. heptaneura*, *D. pachycarpa* and *D. polygonoides* in Brazil.

Cercospora brasiliensis Averna. Leaf spot on *Dioscorea* sp. in Brazil.

Cercospora carbonacea Miles. Angular, black leaf spots 1 to 1.5 centimeters in diameter on *D. alata* in Porto Rico and Cuba.

Cercospora pachyderma Syd. On leaves of *D. alata* and *D. esculenta* in the Philippines.

Cercospora ubi Rac. Circular leaf spots, yellow-brown above, gray-brown below, on *D. alata*, *D. daemona*, *D. esculenta*, and *D. glabra* in Java, China, Malaya, and the Philippines.

Cercospora contraria Syd. Gray-brown leaf spots on *Dioscorea* sp. in the Congo.

Colletotrichum dioscoreae Averna. Anthracnose on *Dioscorea* sp. in Brazil.

Cylindrosporium dioscoreae Miy. and I. Ito. Small, yellowish to brown spots on leaf blades, petioles and stems of *D. batatas* and *D. japonica* in Japan, Defoliation results.

Elsiodothis rehmiana Theiss. and Syd. Black stromata on stems of *D. esculenta* in the Philippines.

Gloeosporium pestis Mass. Anthracnose spots on leaves of *Dioscorea* sp. in Fiji and Russia.

Hemileia discoreae-aculeatae Rac. Yellow leaf rust on *D. aculeata* and other species in Uganda and Java.

Laestadia perusta (B. and Br.) Sacc. Circular dull-brown leaf spots on *D. tomentosa* and *Dioscorea* sp. in Ceylon and India.

Mycosphaerella dioscoricola Syd. Leaf spot on *D. esculenta* in the Philippines.

Phyllachora ulei Wint. Shiny black circular stromata on leaves of *Dioscorea* sp. in Brazil.

Phyllosticta dioscoracearum Bacc. Subcircular gray leaf spots on *Dioscorea* sp. in India.

Phyllosticta dioscoreacola P. Brun. Irregular red-brown leaf spots on *D. batatas* in France.

Phyllosticta dioscoreae-daemonae P. Henn. Circular pale-brown leaf spots with dark-brown margins on *D. daemona* in Brazil.

Phyllosticta graffiana Sacc. On leaves of *D. esculenta* and *D. pentaphylla* in the Philippines.

Puccinia valida Arth. Cinnamon-brown rust pustules on lower leaf surfaces of *D. convolvulacea* in Mexico.

Rostrupia dioscoreae (Kom.) Syd. Cinnamon-brown to black rust pustules on leaves of *D. quinqueloba* in Manchuria and Japan.

Septoria versicolor Pat. Ashen-white leaf spots with brown margins on *Dioscorea* sp. in Ecuador.

Uredo dioscoreae (B. and Br.) Petch. (*Uredo dioscoreae* P. Henn.) Leaf rust on *D. alata*, *D. bulbifera*, *D. esculenta*, *D. grandiflora*, *D. piperifolia* and *D. polygonoides* in Ceylon, the Philippines, Porto Rico, Cuba, Brazil, India, and Uganda.

Uredo dioscoreae-alatae Rac. Brown rust sori on leaf blades, petioles, and stems of *D. alata* and other species in Java and the Philippines.

Uredo dioscoreae-filiformis Rac. Rust pustules on dull-brown leaf spots on *D. filiformis* in Java.

Uredo dioscoreae-pentaphyllae Petch. Leaf rust on *D. pentaphylla* in Ceylon.

Uredo dioscoreae quinquelobae P. Henn. Leaf rust on *D. quinqueloba* in Japan.

Uredo dioscoreae-sativae Syd. Brown rust pustules on leaves of *D. sativa* in India.

Urocystis dioscoreae Syd. Black, elongate, smut pustules on leaf blades, petioles and stems of *D. quinqueloba* and *D. tokoro* in Japan and Russia.

DIOSPYROS. PERSIMMON. Kaki. Ebony. Fruit and timber trees.

Aecidium atro-album P. Henn. Leaf rust on *Diospyros* sp. in the Union of South Africa and the Congo.

Aecidium atrocrustaceum Syd. Leaf rust on *D. discolor* in the Philippines.

Aecidium calosporum Juel. Rust on circular leaf spots on *Diospyros* sp. in Brazil.

Aecidium diospyri A. L. Sm. Leaf rust on *D. mespiliformis* in Angola.

Aecidium melaenum Syd. Leaf rust on *Diospyros* sp. in the Philippines.

Aecidium ramosii Syd. Leaf rust on *Diospyros* sp. in the Philippines.

Aecidium reyesii Syd. Leaf rust on *D. discolor* in the Philippines.

Aecidium rhytismoideum B. and Br. and var. **mabae** P. Henn. Rust on black leaf spots on *D. discolor*, *D. embryopteris*, *D. mespiliformis*, *D. ovalifolia*, *D. tomentosa*, and *Maba abyssinica* in Java, India, Ceylon, Abyssinia, and the Philippines.

Aecidium ulei P. Henn. Leaf rust on *Diospyros* sp. in Brazil.

Botrytis diospyri Brizi. A fruit rot of *D. kaki* in Italy, Russia, and Japan. The fungus also causes a leaf spot and die-back of twigs.

Colletotrichum kaki Maffei. Anthracnose on leaves of *D. kaki* in Italy.

Cylindrosporium kaki Syd. Circular dull-brown or gray leaf spots with black limiting lines on *D. kaki* in Japan.

Fusicladium diospyrae Hori. and Yosh. Circular, black spots with definite margins on leaves, fruit and buds of *D. kaki* in Japan, producing a curl of young leaves. On young shoots the spots are fusiform to oblong, dark-brown to black with sunken centers. Diseased twigs die-back and spotted fruit result.

DIOSPYROS—Continued.
Fusicladium kaki Hori. and Yosh. On leaves of *D. kaki* in Japan.
Fusicladium levieri P. Magn. Circular brown leaf spots with black margins on *D. lotus* in Caucasia.
Gloeosporium kaki Ito. Small black spots, increasing in size and becoming sunken, on fruit of *D. kaki* in Japan. The spots may fuse and crack irregularly. Complete rot of the fruit ensues. Infections also occur on young shoots, showing typical blackish spots of elliptical shape, usually depressed. On stems of young plants all parts above the infected area die. Infected leaves fall, complete defoliation often resulting.
Helicobasidium mompa Tan. See Morus.
Lophodermium diospyri Pat. Long, black, superficial fruiting bodies on circular, often confluent, leaf spots on *D. ebenum* in Indo-China.
Melasmia falcata Syd. Black stromata on leaves of *Diospyros* sp. in Brazil.
Myxosporium kaki Hara. Dark-brown, more or less sunken areas, on stems, branches and rarely on fruit of *D. kaki* in Japan.
Pestalozzia diospyri Syd. Circular to irregular reddish-brown spots on leaves of *D. kaki* in China and Japan. Smaller brown spots, generally regular, also occur on the fruit.
Placosaccardinula diospyricola P. Henn. Black flat fruiting bodies on leaves of *Diospyros* sp. in Brazil.
Phyllosticta erythraea Bacc. Brown leaf spots with black margins on *D. mespilifolius* in Abyssinia.
Septoria diospyri McAlp. On leaves of *D. cargillia* in New South Wales.
Uredo peteloti Pat. Brown rust pustules on circular leaf spots on *D. siamensis* in Indo-China.
DIOTIS. COTTONWEED. Perennial seaside plants.
Puccinia diotidis Pat. and Roum. Leaf rust on *D. candidissima* in France.
DIPCADI. Tender, bulbous, scapose plants.
Aecidium dipcadi Har. and Pat. Leaf rust on *D. udellensis* in the Congo.
DIPHYSA. Shrubs or trees.
Calliospora diphysae Arth. Powdery, black rust pustules on leaves and stems of *D. robinioides* and *D. suberosa* in Guatemala, Costa Rica, and Mexico.
DIPLOGLOTTIS. Australian trees.
Uromyces diploglottidis Cke. and Mass. Leaf rust on *D. cunninghamii* in Queensland.
DIPLOSTEPHIUM. Composites resembling *Aster*.
Rhynchostoma bolleyana Bomm. and Rouss. On leaves and stems of *D. costaricense* (*D. rupestre*) in Costa Rica.
DIPLOTHEMIUM. See Palmae.
DIPSACUS. TEASEL. Biennial or perennial herbs, used as fuller's teasels.
Ascochyta dipsaci Bub. Subcircular small ochraceous leaf spots with dull-brown margins on *D. pilosus* in Asia Minor.
Mycosphaerella sagedioides (Wint.) Lind. See Daucus.
Peronospora violacea Berk. Downy mildew on leaves of *Dipsacus pilosus*, *Knautia silvatica*, *Scabiosa columbaria*, and *Succisa pratensis* in Europe.
Phyllosticta dipsaci Br. and Fautr. Gray leaf spots on *D. pilosus* in France.
Phyllosticta vandae Namys. On leaves of *D. sylvestris* in Poland and Galicia.
Ramularia silvestris Sacc. On leaves of *D. fullonum* and *D. sylvestris* in Spain, Yugo-Slavia, Denmark, France, Bohemia, Belgium, and Germany.
Septoria dipsaci West. Small circular brown, then white leaf spots on *D. azureus* and *D. fullonum* in Belgium and Italy.
Septoria fullonum Sacc. Gray-white leaf spots on *D. fullonum* in Austria.
Uredo involucrorum Rabh. Leaf rust on *D. pilosus* in France, Belgium, and Switzerland.
DISCHIDIA. Evergreen trailing plants cultivated for their white flowers.
Phyllachora dischidiae Syd. Circular black shiny stromata on leaves of *D. rosea* in Chile and the Philippines.
Uredo dischidiae P. Henn. Yellow rust pustules on leaves of *Dischidia* sp. in New Guinea.
DISPORUM. FAIRY BELLS. Small perennial rhizomatous herbs.
Aecidium dispori Diet. Leaf rust on *D. sessile* in Japan.
DISSOTIS. Bristly-hairy herbs or shrubs.
Puccinia dissotidis P. Henn. Yellow-brown rust sori on circular dull-brown leaf spots on *Dissotis* sp. in the Congo.
Pucciniosira dissotidis Wakef. (*Aecidium dissotidis* Cke.) Brown leaf rust on *D. incana* and *D. princeps* in Uganda, the Congo, and the Union of South Africa.
Uredo dissotidis-longicaudae P. Henn. Brown leaf rust on *D. longicaudata* in the Union of South Africa.
DIURIS. See Orchidaceae.
DODONAEA. HOP BUSH. Ornamental trees and shrubs.
Uredo dodonaeae Koord. Leaf rust on *D. viscosa* in Java.
DOLICHOLUS. See Rhynchosia.
DOLICHOS. HYACINTH BEAN. Tropical twiners.
Cercospora wildemanii Syd. Circular brown leaf spots with purple margins on *Dolichos* sp. in the Congo.
Helminthosporium accedens Syd. On leaves of *D. baumii* in the Union of South Africa.
Helminthosporium dolichi Syd. On leaves of *D. eurvphyllus* in the Union of South Africa.
Phyllachora dolichogena (B. and Br.) Sacc. and var. **samoensis** Theiss. and Syd. Black stromata on leaves of *D. lablab* and *Dolichos* sp. in Ceylon and Samoa.
Phyllosticta dolichi Brun. Brown leaf spots with dark margins on *D. lablab* and *D. myoides* in Russia and France.
Physopella concors Arth. See Phaseolus.
Puccinia dolichi Arth. Powdery brown rust pustules on leaves of *D. reticulatus* in Cuba.
Rhizoctonia sp. See Vigna.
Septoria lablabina Sacc. Circular dull-brown leaf spots on *D. lablab* in tropical Africa and the Philippines.
Septoria lablabis P. Henn. Circular, then confluent, dull-brown spots on leaves of *D. lablab* in Tropical Africa and the Philippines.
Uromyces dolichi Cke. Brown rust pustules on leaves of *D. axillaris* and *D. gibbosus* in the Union of South Africa.
Uromyces kisantuensis P. Henn. Powdery dark-brown rust pustules on leaves of *Dolichos* sp. in the Congo.
Vermicularia capsici Syd. See Capsicum.
Woroninella dolichi (Cke.) Syd. Orange galls on leaves of *D. lablab* and *Rhynchosia volubilis* in China and the Philippines.

DOMBEYA. ASSONIA Ag. Shrubs and small trees with large loose umbels of showy flowers.
Phyllachora dombeyae Syd. Black stromata on leaves of *D. rotundifolia* and *D. schimperiana* in the Union of South Africa.
DONAX. See Arundo.
DOREMA. Large perennial herbs yielding gum and resins.
Puccinia doremae Spechn. Leaf rust on *Dorema* sp. in Turkestan and Transcaspia.
DORONICUM. LEOPARD'S-BANE. Hardy herbs with yellow many-flowered heads.
Ascochyta doronici Allesch. Large ovoid subochraceous to ashen-brown leaf spots on *D. caucasicum* in Germany.
Coleosporium doronici Namysl. Yellow leaf rust on *D. austriacum* in Austria.
Mycosphaerella aronici (Fckl.) Volk. On leaves of *D. austriacum*, *D. caucasicum*, *Aronicum scorpioides*, and *Carduus defloratus* in north Africa, Switzerland, Italy, and Austria.
Phyllosticta austriaca Sacc. Brown leaf spots on *D. austriacum* in Italy.
Phyllosticta doromicella Maire. Black leaf spots on *D. thirkeum* in Asia Minor.
Phyllosticta doromicigena Bub. On leaves of *D. cordatum* in Hungary.
Puccinia doronicella Syd. Brown rust pustules on leaves of *D. austriacum* and *D. cordatum* in Austria and Hungary.
Puccinia doronici Niessl. Black rust sori on leaves of *D. austriacum* and *D. macrophyllum* in Bulgaria and Austria.
Ramularia doronici (Sacc.) Grove. On leaves of *D. pardalianches* in Great Britain, Denmark, and France.
Ramularia doronicum Vogl. Subcircular to oblong, often marginal, yellow, then white, leaf spots on *D. clusium*, *D. cordatum*, and *D. scorpioides* in Italy and Spain.
Ramularia filaris Fres. See Adenostyles.
Septoria czarnohorica Nam. Circular to irregular and confluent brown leaf spots on *D. cordifolium* in France and Poland.
DORSTENIA. Tropical herbs and small shrubs.
Aecidium bertonii Speg. Leaf rust on *D. brasiliensis* in Paraguay.
Aecidium buchwaldii P. Henn. Rust on brown leaf spots on *Dorstenia* sp. in Tanganyika.
Aecidium dorsteniae-holstii P. Henn. Rust on circular dull-brown leaf spots on *D. holsti* in Tanganyika.
Puccinia dorsteniae Lagh. Leaf rust on *D. psilurus* in Angola.
Uredo consanguinea Syd. Brown leaf rust on *D. multiformis* in Brazil.
Uredo rubescens Arth. Powdery brown rust pustules on leaves of *D. contrajerva* and *D. houstoni* in Porto Rico, Guatemala, and Trinidad.
DOVYALIS. See Aberia.
DRABA. WHITLOW GRASS. Spring-flowering annuals.
Ascochyta drabae Oud. On leaves of *D. alpina* in Russia.
Peronospora norwegica Gäum. Downy mildew on leaves of *D. hirta* in Norway.
Puccinia drabae Rud. Brown rust pustules on leaves, stems, and flowers of *Draba* spp. in Europe and Asia Minor. Reported from Utah and New York.
DRACAENA. (including *Cordyline*.) DRACENA. DRAGON TREE. Variegated-leaved shrubs.
Cercospora cordylines P. Henn. On leaves of *C. dracaenoides* in Argentina and Brazil.
Colletotrichum cordylines Pöll. Anthracnose on leaves of *C. indivisa* in Italy.
Colletotrichum dracaena Allesch. On leaves of *D. latifolia* in Germany.
Colletotrichum dracaenicola Sacc. and Trott. Anthracnose on leaves of *D. fragrans* in Italy.
Gloeosporium polymorphum Trinch. Large dull-brown to ashen leaf spots on *D. fragrans* in Italy.
Gloeosporium thuemenii Sacc. See Anthurium.
Graphiola disticha (Ehrbg.) Lév. Raised brown hard fruiting bodies on leaves of *D. draca* in India.
Lembosia orbicularis Pat. Elongate black fruiting bodies disfiguring the leaves of *Dracaena* sp. in Zanzibar.
Lembosia patouillardii Sacc. and Syd. On leaves of *Dracaena* sp. in east Africa.
Macrophoma bakeri Syd. Discolored areas on leaves of *Dracaena* sp. in Brazil.
Melanconium stictoides Sacc. and Paol. On leaves of *Dracaena* sp. in Malacca.
Meliola dracaenicola Pat. and Har. Superficial black fungus patches on leaves of *Dracaena* sp. in the Congo.
Meliola subdentata Pat. Circular black superficial fungus patches on leaves of *Dracaena* sp. in Indo-China.
Mycosphaerella dracaenae Tassi. On leaves of *D. reflexa* in Italy.
Myxosporium dracaenicolum B. and Br. Destroys leaves of *Dracaena* sp. in Great Britain.
Phyllachora nervisequia Wint. Black stromata on leaves of *D. cannifolia* in Queensland.
Phyllosticta cordylines Sacc. and Berl. On leaves of *D. australis* and *D. terminalis* in Queensland.
Phyllosticta dracaenae Griff. and Maubl. Large irregular leaf spots on *Dracaena* sp. in France, working injury to greenhouse plants.
Phyllosticta draconis Berk. Irregular pale-brown leaf spots with purple margins on *D. cooperi*, *D. draca*, and *D. terminalis* in Portugal, France, Great Britain, and Finland.
Physalospora amphididyma Syd. Subcircular white leaf spots with red-purple raised margins on *D. papahii* in Tanganyika.
Placoasterella schweinfurthii (P. Henn.) Theiss. and Syd. On leaves of *D. ombetis* in Abyssinia.
Rosellinia echinata Mass. See Ficus.
Ustilago dracaenae S. da Cam. Leaf smut on *D. draco* in Portugal.
Ustilago trabutiana Sacc. Black powdery masses of smut spores in ovaries of *D. draco* in Algeria.
DRACOCEPHALUM. MOLDAVICA Ag. DRAGONHEAD. Hardy herbaceous annuals or perennials.
Peronospora rossica Gäum. Downy mildew on leaves of *D. thymiflorum* in Russia.
Septoria dracocephali Thuem. On leaves of *D. peregrinum* in Siberia.
DRIMYS. Broad-leafed evergreen trees and shrubs.
Actinothyrium drimydis Speg. Circular pale-brown leaf spots on *D. winteri* in Chile.
Gloeosporium walteri McAlp. Anthracnose on leaves of *D. aromatica* in Australia.
Helminthosporium orbiculare Lév. On leaves of *D. chilensis* and *D. winteri* in Chile.
Munkiella drymidis (Lév.) Speg. On leaves of *D. winteri* in Chile.
Mycosphaerella drymidis (Berk.) Sacc. Circular brown leaf spots on *D. winteri* in Chile and Brazil.
Phyllosticta drymidis Speg. Circular gray-white leaf spots with purple margins on *D. winteri* in Chile.
Phyllosticta winterii Speg. Circular brown leaf spots on *D. winteri* in Chile.
Septoria drimydicola Speg. Circular to irregular leaf spots on *Drimys* sp. in Brazil.
Septoria drymios Mont. On leaves of *D. chilensis* in Chile.
Septoria winterii Speg. On leaves of *D. winteri* in Chile.

EPILOBIUM—Continued.
Puccinia krookii P. Henn. Powdery, dark-brown rust sori on leaves of *E. flavescens* in the Union of South Africa.
Ramularia enecans Magn. Gray-white to yellow leaf spots on *E. angustifolium* in Germany.
Ramularia epilobii All. On leaves of *E. palustre* in Germany.
Ramularia epilobii-parviflori Lindr. Subcircular to oblong gray-brown leaf spots with purple margins on *E. parviflorum* in Denmark and Finland.
Ramularia epilobii-rosei Lind. Subcircular or oblong grayish-green to pale-brown leaf spots on *E. roseum* in Denmark and Austria.
Ramularia hornemanni Lindr. Subcircular brown, yellow, or red leaf spots on *E. hornemanni* in Lapland.
Ramularia punctiformis (Schlechtd.) V. Hoeh. Leaf spot on *Epilobium* spp. in Europe. Reported from Wisconsin.
Septoria alpicola Sacc. On leaves of *E. alpinum* in Italy.
Venturia maculaeformis (Desm.) Sacc. On leaves of *E. hirsutum* in Austria.
EPIMEDIUM. Herbs used in rock gardens.
Cercosporella epimedii Jach. On leaves of *E. pinnatum* in Russia.
Mycosphaerella epimedii (Sacc.) Jaap. On leaves of *E. alpinum* in Dalmatia, Italy, and Switzerland.
Phyllosticta epimedii Sacc. Irregular ochraceous leaf spots with red margins on *E. alpinum* in Italy.
Puccinia epimedii (Henn. and Shir.) Miy. and Ito. Rust sori on circular yellow-brown leaf spots on *E. macranthum* in Japan.
EPIPACTIS. Hardy terrestrial orchids. See Orchidaceae.
ERAGROSTIS. Love grass. Teff. Annual or perennial grasses.
Epichloe eragrostis Pole-Evans. Attacks *E. plana* in the Union of South Africa.
Helminthosporium eragrostidis P. Henn. Black, velvety fungus patches in the glumes of *Eragrostis* sp. in the Congo.
Sorosporium turneri McAlp. Dense black masses o smut spores in the ovaries of *E. nigra* in Australia.
Sphaceliotheca kusanoana P. Henn. (*Ustilago kusanoana*, P. Henn.) Smut in inflorescences of *E. ferruginea* in Japan.
Uromyces pedicellata Pole-Evans. Yellow-brown to black rust sori on leaves and culms of *E. abyssinica* and *E. curvula* in the Union of South Africa.
Ustilago egenula Syd. and Butl. Olivaceous smut sori replacing the ovaries of *E. nutans* in India.
ERANTHEMUM. Tropical shrubs, some species cultivated for the foliage or flowers.
Isariopsis acanthacearum Cke. See Daedalacanthus.
ERANTHIS. Winter aconite. Low perennial herbs.
Peronospora eranthidis (Pass.) Fckl. Downy mildew on leaves of *E. hyemalis* in Switzerland.
Septoria cajadensis Speg. Ashen white or ochraceous circular to angular, often confluent, leaf spots on *E. hyemalis* in Italy.
Tubercinia eranthidis (Pass.) Liro. Smut on *E. hyemalis* in southern Europe.
EREMOCITRUS. Small trees allied to *Citrus*.
Bacterium citri Hasse. See Citrus.
EREMURUS. Desert candle. Hardy liliaceous desert plants with tall flowering stalks.
Puccinia eremuri Kom. Dark-brown rust pustules on both leaf surfaces of *E. inderiensis*, *E. kaufmanni*, *E. robustus*, and *E. spectabilis* in Asia Minor and Persia.
Rhabdospora eremuri Ohl. Dark-brown spots on stems of *Eremurus* sp. in Russia.
ERIA. See Orchidaceae.
ERIANTHUS. Ravenna grass. Tall, reedlike, perennial grasses with large woolly plumelike inflorescences.
Cintractia pulverulenta Cke. and Mass. Black smut sori in ovaries of *Erianthus* sp. in India.
Puccinia damloi Bub. Brown to black powdery rust pustules on leaves of *E. hostium* in Yugoslavia.
Uredo ravennae Maire. Leaf rust on *E. ravenna* in French north Africa and Spain.
Ustilago erianthi Syd. Smut sori destroying the ovaries and forming dark-olive spore masses on *E. ravenna* in Russia.
Ustilago sacchari Rabb. See Saccharum.
ERICA. Heath. Ornamental shrubs.
Gibbera salisburgensis Niessl. On leaves of *E. carnea* in Germany.
Phyllosticta ericae Allesch. Red-brown patches on leaves of *E. carnea* in Germany.
Stemphylium ericoctonum B. and De B. On *Erica* spp. in Europe.
Venturia straussii Sacc. On branches and leaves of *E. scoparia* in Italy and France.
ERIGERON. Fleabane. Mostly weeds, a few species cultivated in border plantings like *Aster*.
Aecidium spegazzinii Pat. Leaf rust on *E. albus*, *E. bonariensis* and *E. marinus* in South America.
Coleosporium erigerontis Syd. Powdery golden rust pustules on leaves of *E. linifolius* in Formosa.
Entyloma calendulae (Oud.) De B. See Calendula.
Puccinia doloris Speg. Brown rust pustules on small brown sunken leaf spots of *E. bonariensis*, *E. deamii*, and *Erigeron* sp. in Argentina, Chile, Colombia, Costa, Rica and Guatemala.
Puccinia dovrensis Blytt. Dark-brown rust pustules on leaves of *E. alpinus* and *E. uniflorus* in Norway, Switzerland, and India.
Septoria chanousii Ferr. Irregular brown leaf spots on *E. uniflorus* in Italy.
Septoria erigeronata Thuem. On leaves of *E. elongatus* in Siberia.
Venturia bonariensis Speg. Brown indefinite leaf spots on *E. bonariensis* in Argentina.
Venturia tucumanensis Speg. On leaves of *E. canadense* in Argentina.
ERIOBOTRYA. Loquat. Small trees grown for ornament and edible fruit.
Ascochyta eriobotryae Vogl. Circular to oblong dull-brown to white leaf spots on *E. japonica* in Italy.
Coleopuccinia simplex Diet. Leaf rust on *E. japonica* in Japan.
Corticium salmonicolor B. and Br. See Citrus.
Corynecum eriobotryae Scalia. Circular, gray-white leaf spots with dark-purple margins on *E. japonica* in Sicily.
Entomosporium sp. Raised shiny spots on fruit and leaves surrounded by yellowish rings and never confluent on *E. japonica* in the Union of South Africa.
Entomosporium mespili (DC.) Sacc. See Cotoneaster.
Fomes lamaoensis Murr. See Hevea.
Fusicladium sp. Circular brown, then velvety dark olive-green, often confluent, spots on fruit and leaves of *E. japonica* in the Union of South Africa. Probably the same as the following species. The leaves are often distorted.
Fusicladium eriobotryae Cav. Scabby areas on leaves, stems and fruit of *E. japonica* in Australia, Russia, and Italy. Reported from California.

ERIOBOTRYA—Continued.
Fusarium udum Butl. See Dianthus.
Gloeosporium eriobotryae Speg. Circular, then confluent, ashen leaf spots on *E. japonica* in Argentina.
Leptosphaeria eriobotryae Syd. and Butl. On leaves of *E. japonica* in India.
Phyllosticta eriobotryae Thuem. Subcircular to irregular and confluent gray-brown leaf spots on *E. japonica* in Argentina, Brazil, Japan, Formosa, Australia, Russia, and Italy.
Phyllosticta uleana Syd. Large circular, rarely confluent, dull-yellow to brown leaf spots with purple margins on *E. japonica* in Brazil.
Septoria eriobotryae Maffei. Irregular, black leaf spots on *E. japonica* in Italy.
ERIOSTEMON. Australian evergreen shrubs.
Puccinia eriostemonis McAlp. Dark-orange rust pustules on leaves of *E. myoporoides* in Australia.
ERLANGEA. Vernonia-like shrubs.
Mycosphaerella eriangeae Bacc. On leaves of *E. abyssinica* in Abyssinia.
Puccinia erlangeae Grove. Leaf rust on *E. tomentosa* in British east Africa.
ERODIUM. HERON'S-BILL. Alfilaria. Filaree. Annual or perennial herbs grown in flower gardens.
Gloeosporium schweinfurthianum Thuem. On leaves of *E. glaucophyllum* in Egypt.
Peronospora erodii Fckl. Downy mildew on leaves of *E. ciconium*, *E. cicutarium*, and *E. malachoides* in Sardinia, Denmark, Russia, Austria, and Germany.
Phyllosticta erodii Speg. Subcircular brown leaf spots with broad purple margins on *E. malachoides* in Argentina.
Ramularia erodii Bres. Small irregular leaf spots on *E. cicutarium* in Spain, Denmark, and Germany.
Ramularia geranii (West.) Fckl. See Geranium.
Synchytrium papillatum Farl. Small galls on dull-purple leaf spots on *E. cicutarium* in Guadeloupe, Canary Islands, St. Croix, and the Union of South Africa. Also in California on imported plants.
ERYNGIUM. ERYNGIO. Sea holly. Annual and perennial herbs valued for the steel-blue cast of their stems.
Aphelenchus olesistus Ritz. Bos. See Begonia.
Ascochyta phomoides Sacc. On stems of *Eryngium* sp. in France.
Entyloma eryngii (Cda.) De By. Smut pustules on circular to irregular, often confluent, brown leaf spots on *E. campestre* and *E. planum* in France, Italy, Austria, and Germany. Reported from Iowa.
Erysiphe taurica Lév. See Althaea.
Leptosphaeria woodrowi wilsoni Garb. On leaves of *E. campestre* in Russia.
Mycosphaerella eryngii (Fr.) Lind. and var. **ilbanotis** Fckl. On leaves of *E. campestre*, *E. maritimum*, and *Libanotis montana* in Europe.
Phyllosticta eryngiana Sacc. and Fautr. Dull yellow-brown leaf spots on *E. campestre* in France.
Phyllosticta eryngiella Bub. Gray-white angular leaf spots on *E. campestre* in Hungary.
Phyllosticta eryngii Syd. Large indefinite black, often confluent, leaf spots on *E. maritimum* and *E. pandanifolium* in Denmark and Germany.
Phyllosticta eryngiicola Bub. On leaves of *E. campestre* in Hungary.
Puccinia eryngii DC. Leaf rust on *E. bovei*, *E. campestre*, *E. congestum*, *E. creticum*, *E. glomeratum*, and *E. virens* in Europe, Egypt, French North Africa, and Asia Minor.
Ramularia eryngii Jachw. On leaves of *E. planum* in Russia.
Septoria eryngicola Oud. and Sacc. On leaves of *E. campestre* in Italy and Spain.
Septoria eryngii West. Angular brown to gray-white leaf spots on *E. maritimum* in Denmark and Belgium.
ERYSIMUM. BLISTER CRESS. Early-blooming hardy annuals with yellow and orange flowers.
Septoria erysimi Niessl. Pale-brown leaf spots on *E. cheiranthoides* in Bohemia.
Septoria repanda Bub. Circular to irregular, yellow or white leaf spots on *E. banaticum* and *E. repandum* in Yugoslavia and Bohemia.
ERYTHRAEA. CENTAURIUM. Ag. Low, annual, biennial or perennial herbs.
Cercospora erythraeae Höll. Dull-yellow areas on leaves and stems of *E. linariaefolia* in Hungary.
Peronospora erythraeae (Kuehn) Gäum. Downy mildew on leaves, peduncles and stems of *E. centaurium*, *E. linariaefolia*, *E. litoralis*, *E. pulchella*, and *E. ramosissima* in central and north Europe.
Phyllosticta erythraeae Sacc. and Speg. On leaves of *E. centaurium* in Italy.
Pyrenopeziza plantaginis Fckl. var. **erythreae** Pat. Brown spots on lower leaf surfaces of *E. centaurium* in Tunis and Algeria.
Septoria gentianae Thuem. var. **erythuseae** Gz. Frag. On leaves of *E. chloodis* in Spain.
ERYTHRINA. CORAL TREE. Herbs, shrubs, and trees cultivated for ornament and as coffee shade.
Coleosporium erythrinae Petch. Leaf rust on *E. lithosperma* in Ceylon.
Colletotrichum erythrinae Koord. Anthracnose on leaves of *E. lithosperma* in Ceylon and Java.
Dicheirinia binata (Berk.) Arth. (*Uredo cabreriana* Kern. and Kellerm.) Powdery deep-brown rust pustules on lower leaf surfaces of *E. glauca* and *E. umbrosa* in Porto Rico, Cuba, Guatemala, and Trinidad.
Diplodia cacaoicola P. Henn. See Theobroma.
Fomes lamaoensis Murr. See Hevea.
Fomes lignosus Klotzsch. See Hevea.
Helminthosporium extensum Petch. On leaves of *E. lithosperma* in Ceylon.
Helminthosporium inversum Sacc. On leaves of *E. indica* in the Philippines.
Mycosphaerella erythrinae Koord. Circular gray-white leaf spots on *E. lithosperma* and *E. ovalifolia* in Java and Ceylon.
Phyllosticta australis Speg. Indefinite grayish-white leaf spots on *E. crista-galli* in Argentina.
Phyllosticta erythrinae Petch. Spots on branches and leaves of *E. lithosperma* in Ceylon.
Phyllosticta erythrinicola Young. Numerous small, circular, sordid-white leaf spots on *E. micropteryx* in Porto Rico.
Ravenelia erythrinae Gäum. Leaf rust on *E. microcarpa* and *E. velutina* in Java.
Ravenelia platensis Speg. Powdery brown rust sori on pyriform galls on leaf blades and petioles and on branches of *E. crista-galli* in Argentina and Uruguay.
Rosellinia arcuata Petch. See Thea.
Rosellinia pepo Pat. See Citrus.
Septoria bonanseana Sacc. Numerous subcircular gray-white leaf spots with ochraceous margins on *E. breviflora* in Mexico.
Sphaerostilbe repens B. and Br. See Hevea.
Telimena erythrinae Racib. Subcircular yellow-green, then yellow, finally brown, leaf spots on *E. lithosperma* in Java.
Trabutia erythrina Rick. Circular black, often confluent, stromata on *E. crista-galli* in Brazil.

ERYTHRINA—Continued.

Uredo erythrinae P. Henn. Rust pustules on circular, then confluent, yellow-brown leaf spots on *E. indica*, *E. tomentosa* and *Erythrina* sp. in the Philippines, the Congo, and Uganda.

Uredo erythrinae-ovalifoliae Petch. Leaf rust on *E. ovalifolia* and *E. velutina* in Ceylon.

Uromyces erythrinae Lagh. Brown rust pustules on leaves of *Erythrina* sp. in Ecuador.

ERYTHRONIUM. TROUT LILY ADDER'S-TONGUE. Small, spring-flowering, hardy bulbous plants.

Ascochyta erythronii Sacc. and Speg. Indeterminate white leaf spots on *E. dens-canis* in Italy.

Septoria erythronii Sacc. and Speg. Subcircular to irregular white spots on leaves of *E. dens-canis* in Italy.

Septoria falcispora Bub. Circular to elongate dirty-white spots without definite margins on leaves of *E. dens-canis* in Montenegro.

Uromyces erythronii (DC.) Pass. Yellow rust pustules, which later become brown, on both sides of the leaves and on the petioles of *E. dens-canis* in France, Spain, Italy, Switzerland, Bulgaria, Yugoslavia, Dalmatia, Austria, Hungary, Japan, Siberia, and Germany.

ERYTHROXYLON. COCAINE TREE. Woody medicinal plants.

Corticium sp. Black rot of *E. coca* in Ceylon. Similar to *Corticium theae* on *Thea* (q. v.).

Corticium salmonicolor B. and Br. See Citrus.

Cronartium gilgianum P. Henn. Red-brown rust pustules on leaves of *Erythroxylon* sp. and *Euclea* sp. in central and east Africa.

Fomes lamaoensis Murr. See Hevea.

Phyllachora usteriana Speg. Shiny black stromata on leaves of *E. suberosum* in Brazil.

Phyllosticta erythroxyli Graz. Small circular to irregular gray-white leaf spots with yellow to dull-brown margins on *E. coca* in Bolivia and Peru.

Uredo erythroxylonis Graz. Leaf rust on *E. areolatum* and *E. coca* in Porto Rico, Cuba, Peru, Bolivia, and Brazil.

ESCALLONIA. South American evergreen shrubs or small trees.

Phyllachora escalloniae Pat. Subcircular black stromata on leaves of *Escallonia* sp. in Ecuador.

Physalospora escalloniae P. Henn. Black spots on leaves of *E. chlorophylla* in Brazil.

Trabutia escalloniae (P. Henn.) Theiss. and Syd. Black stromata on leaves of *E. rubra* in Argentina.

EUCALYPTUS. Valuable ornamental and timber trees, natives of Australia, many species of which are called gum trees, e. g., blue gum, spotted gum.

Aulographium eucalypti Cke. and Mass. On leaves of *E. obliqua* in Australia and Tasmania.

Camarosporium eucalypti Wint. Angular to irregular pale-brown to ashen leaf spots on *Eucalyptus* sp. in Australia.

Cercospora epicoccoides Cke. and Mass. Small purple, then confluent, leaf spots on *Eucalyptus* sp. in Australia.

Cercospora eucalypti Cke. and Mass. Subcircular, then confluent, pale-brown leaf spots with rosy margins on *Eucalyptus* sp. in Australia.

Cercosporella theae Petch. See Thea.

Coniothecium eucalypti Thuem. On branches of *E. globulus* and *Eucalyptus* sp. in Spain, Portugal, and Ecuador.

Corticium salmonicolor B. and Br. See Citrus.

Coryneum eucalypti d'Alm. and da Cam. Small irregular white spots with brown margins on *E. globulus* in Portugal.

Cylindrosporium eucalypti McAlp. Circular definite gray leaf spots with red-brown margins on *E. melliodora* in Victoria.

Diaporthe cubensis Bruner. Produces a canker of trunks and limbs of *Eucalyptus* spp. in Cuba. The bark is destroyed, often with a gummy exudation, and lesions are formed which permit the entry of other fungi.

Endothia havanensis Bruner. On bark of twigs and branches of *E. botryoides*, *E. microphylla*, *E. occidentalis*, *E. robusta*, *E. rostrata*, *Mangifera indica*, *Persea gratissima*, and *Spondias mombin* in Cuba.

Gloeosporium eucalypti McAlp. Leaf anthracnose on *E. corynocalyx* in Australia.

Gloeosporium nigricans Cke. and Mass. Anthracnose on leaves of *E. pauciflora* in Australia.

Gloeosporium rhipidium Speg. Anthracnose on leaves of *E. globulus* in Uruguay and Argentina.

Harknessia uromycoides Speg. On leaves of *Eucalyptus* sp. and *E. globulus* in west Australia, Portugal, and California.

Hendersonia grandispora McAlp. Attacks leaves and twigs of *Eucalyptus* sp. in Victoria.

Hypospila eucalypti Wakef. Red-brown spots on leaves of *Eucalyptus* sp. in Queensland.

Lembosia orbicularis Wint. Black elongate superficial perithecia on subcircular leaf spots on *E. pilularis* in Australia.

Leptostromella eucalypti Cke. and Mass. Subcircular red-brown leaf spots on *Eucalyptus* sp. in Australia.

Melasmia eucalypti Cke and Mass. On *Eucalyptus* leaves in Queensland.

Mycosphaerella cryptica Cke. On leaves of *Eucalyptus* sp. in Australia.

Mycosphaerella molleriana Thuem. and var. **megalospora** da Cam. Irregular dull-brown leaf spots on *E. ficifolia*, *E. globulus* and *Eucalyptus* sp. in Brazil, Algeria, and Portugal.

Mycosphaerella nubilosa Cke. On leaves of *Eucalyptus* sp. in Australia.

Oidium sp. Powdery mildew causing crinkling and distortion of leaves on young shoots of *Eucalyptus* spp. in Brazil.

Oidium eucalypti Rostr. Powdery mildew on leaves of *Eucalyptus* seedlings in Denmark.

Phoma australis Cke. Elliptical, then confluent, dull-brown leaf spots on *Eucalyptus* sp. in Australia.

Phoma eucalyptidea Thuem. On leaves of *E. globulus* in Victoria and Portugal.

Phyllachora eucalypti (Cke. and Mass.) Theiss. and Syd. Black stromata on leaves of *E. viminalis* in Tasmania.

Phyllachora maculata Cke. Shiny black stromata on upper leaf surfaces of *Eucalyptus* sp. in Australia.

Phyllosticta eucalypti Thuem. Large irregular dull-brown, then gray-white, leaf spots on *E. gigan teus* and *E. globulus* in Russia, Denmark, Spain, Portugal, Algeria, and Australia.

Phyllosticta eucalyptina Pat. On leaves of *E. globulus* in Tunis.

Phyllosticta globuli Pass. On leaves of *E. globulus* in Italy.

Phyllostictiella phomatoides (Cke and Mass.) Tass. On leaves of *Eucalyptus* sp. in Victoria.

Physalospora latitans Sacc. Attacks leaves and twigs, causing a die-back of *E. colossea* and *E. rostrata* in Portugal and Brazil. Reported from California.

Placostroma inaequale (Cke.) Theiss. and Syd. Black shiny stromata on brown leaf spots on *Eucalyptus* sp. in Victoria.

Readeriella mirabilis Syd. Stromata on circular, sunken, dull-brown leaf spots on *E. capitellata* in Victoria.

EUCALYPTUS—Continued.
Rhytisma eucalypti P. Henn. Black opaque stromata on dull-brown, circular leaf spots on *E. santalifolia* in Australia.
Schizothyrium eucalyptorum Cke. and Mass. Circular reddish leaf spots on *E. obliqua* in Australia.
Septoria eucalypti Wint. and Roum. On leaves of *E. amygdalina* in Algeria.
Septoria mortolensis Penz. and Sacc. See Acacia.
Sphaerostilbe repens B. and Br. See Hevea.
Stictus emarginata Cke. and Mass. On leaves of *Eucalyptus* spp. in Ceylon.
Ustilago vriesiana Vuill. A smut said to cause galls on stems and roots of seedlings from which witches'-broomlike growths develop. On *E. amygdalina* in France and Holland.
Canker. An undetermined fungus attacks *Eucalyptus* spp., *Mangifera indica*, *Persea gratissima*, and other trees in Hawaii and possibly in Brazil. It works inward from the leaves and young shoots, as well as through the bark, forming cankers and ultimately killing infected trees.
EUCHARIS. AMAZON LILY. Bulbous plants.
Aecidium delicatulum Arth. Leaf rust on *Eucharis* sp. in Trinidad.
Uredo eucharidis P. Henn. Brown leaf rust on *E. candia* in Peru and Ecuador.
EUCHLAENA. TEOSINTE. Stout annual or perennial grasses grown for forage and ornament.
Helminthosporium euchlaenae Zimm. Elongate brown leaf spots on *E. mexicana* in Tanganyika.
Phyllosticta euchlaena Sacc. Turns leaves of *E. luxurians* white, destroying their forage value. In the Philippines.
Sclerospora maydis (Rac.) Butl. See Zea.
Sclerospora philippinensis Weston. See Zea.
Sclerospora sacchari Miy. See Saccharum.
Sclerospora spontanaea Weston. See Zea.
Ustilago kellermanii Clint. Smut sori involving the terminal and nodal growths of *E. luxurians* in Guatemala. The brown-black dusty spore masses are inclosed by the leaf sheaths.
EUGENIA. SURINAM CHERRY. CLOVE TREE. A large group of tropical trees and shrubs, many species cultivated for ornament or fruit.
Actinothecium callicola Speg. Small circular pale-brown leaf spots on *Eugenia* sp. in Brazil.
Campsotrichum eugeniae Pat. Circular dull-brown leaf spots on *Eugenia* sp. in Indo-China.
Catacauma peglerae Doidge. Black stromata on leaves of *E. capensis* in the Union of South Africa.
Coniothyrium trigonicolum Rangel. On leaves of *E. uniflora* in Brazil.
Entyloma eugeniarum Cke. and Mass. Dark-brown smut sori on circular to angular leaf spots on *Eugenia* sp. in Queensland.
Entyloma paradoxum Syd. Leaf smut on *E. aquea* in Java.
Fusarium udum Butl. See Dianthus.
Helminthosporium asterinoides Sacc. and Syd. Black superficial fungus layers on lower leaf surfaces of *Eugenia* sp. in Brazil.
Lasmenia balansae Speg. Small black irregular stromata on leaves of *Eugenia* sp. in Paraguay and Brazil.
Melasmia pulchella Speg. On leaves of *Eugenia* spp. in Paraguay and Brazil.
Metasphaeria incompleta Rehm. On *Eugenia* sp. in the Philippines.
Microcyclus labens Sacc. and Syd. On leaves of *Eugenia* sp. in Chile.
Mycosphaerella eugeniae Rehm. On leaves of *E. uniflora* (*E. micheli*) in Brazil.
Myiocopron valdivianum Speg. On leaves of *Eugenia* sp. in Chile.
Napicladium fumago Speg. Thin black superficial fungus layers on leaves of *Eugenia* sp. and *Myrtus* sp. in Chile.
Napicladium myrtacearum Speg. As above on *Eugenia* sp. in Brazil.
Phaeophleospora eugeniae Rangel. On leaves of *E. uniflora* in Brazil.
Phyllachora ambigua Syd. Black irregular stromata on leaves of *E. jambolana* in India.
Phyllachora angustispora Speg. Black stromata on leaves of *Eugenia* sp. in Argentina.
Phyllachora biareolata Speg. Black stromata on circular brown leaf spots on *E. guabiju* in Argentina.
Phyllachora phylloplaca (Kze.) Theiss. and Syd. Shiny black stromata on leaves of *Eugenia* sp. in Brazil.
Phyllachora vimulosa Speg. Black stromata on leaves of *Eugenia* sp. in Costa Rica.
Phyllachora wetzelii Chardon. Small black circular stromata on brown leaf spots on *Eugenia* sp. in Porto Rico.
Phyllosticta eugeniae Young. Circular dark-brown leaf spots with raised light-brown margins on *E. buxifolia* in Porto Rico.
Phyllosticta icarahyensis Rangel. Leaf spots on *E. uniflora* in Brazil.
Phyllosticta myrticola Speg. Circular white leaf spots with definite narrow dull-red margins on *E. smithii* and *Eugenia* sp. in Brazil and Victoria.
Polystomella granulosa (Kl.) Theiss. and Syd. Dull-black stromata on leaves of *Eugenia* sp. in Chile.
Puccinia barbacensis Rangel. Leaf rust on *Eugenia* sp. in Brazil.
Puccinia eugeniae Rangel. Leaf rust on *E. grandis* in Brazil.
Puccinia grumixamal Rangel. Leaf rust on *E. brasiliensis* in Brazil.
Septoria eugeniarum P. Henn. On leaves of *Eugenia* sp. in Argentina.
Septoria eugenicola Speg. Sanguineous leaf spots with white centers on *Eugenia* sp. in Argentina.
Sphaerodothis balansae (Tass.) V. Hoeh. Black stromata on lower leaf surfaces of *Eugenia* sp. in Paraguay.
Uncinula australis Speg. Powdery mildew on leaves of *Eugenia* sp. in Paraguay.
Uredo eugeniarum P. Henn. Leaf and stem rust on *E. uvalha* and *Eugenia* sp. in Brazil.
Uredo goeldiana P. Henn. Yellow to golden rust pustules on fruit of *Eugenia* sp. in Brazil.
Uredo myrtacearum Pazsch. Yellow-brown rust pustules on leaves of *E. grandis* in Brazil.
EULOPHIA. Terrestrial orchids. See Orchidaceae.
EUONYMUS. BURNING BUSH. WINTER CREEPER. WAHOO. Deciduous or evergreen shrubs and small trees.
Ascochyta evonymi Oud. Circular gray-white leaf spots with brown margins on *E. europaea*, *E. japonica*, and *E. vulgaris* in Bohemia and Holland.
Ascochyta evonymicola Allesch. Irregular red-brown, then gray-white, spots on leaves of *E. europaea* in Italy and Germany.
Cercosporella evonymi Erikss. Subcircular to angular brown leaf spots with purple margins on *E. europaea* in Scandinavia.
Gloeosporium euonymicolum Hemmi. Anthracnose causing leaf fall of *E. japonica* and *E. radicans* in Japan.
Gloeosporium evonymi Br. and Cav. Leaf anthracnose on *E. japonica* in Italy.

EUONYMUS—Continued.

Gloeosporium frigidum Sacc. Anthracnose on leaves of *E. japonica* in Italy.

Macrophoma cylindrospora (Desm.) Sacc. See Hedera.

Marssonia thomasiana Sacc. Subcircular dull-red leaf spots on *E. europaea* and *E. latifolia* in Europe. Reported from Wisconsin.

Melampsora evonymi-caprearum Kleb. See Salix.

Microsphaera euonymi (DC.) Sacc. Powdery mildew on leaves of *E. europaea* and *E. verrucosus* in Europe.

Mycosphaerella evonymi (Kunze.) Schroet. On leaves of *E. europaea* in Europe.

Oidium euonymi-japonici (Arcang.) Salm. Dense white patches of mildew on leaves of *E. japonica* and *E. radicans* in Japan, Argentina, and Europe. Also known from Louisiana.

Phyllosticta aliena (Fr.) Sacc. Elongate spots on branches of *E. europaea* in France.

Phyllosticta bolleana Sacc. On leaves of *E. japonica* in Italy and Austria.

Phyllosticta destructiva Desm. See Althaea.

Phyllosticta evonymella Sacc. Angular olive leaf spots on *E. europaea*, *E. japonica*, and *E. latifolia* in Spain, Italy, France, and Germany.

Phyllosticta evonymicola Togn. Gray-white leaf spots with ochraceous margins on *E. europaea* in Italy.

Phyllosticta nemoralis Sacc. Indefinite pale-brown leaf spots on *E. europaea* in Spain and France.

Phyllosticta pustulosa S. and R. Rufous gray-white leaf spots on *E. japonica* in Algeria.

Phyllosticta sardoa Pass. Large gray-white leaf spots on *E. japonica* in Italy.

Septoria evonymella Pass. On leaves of *E. japonica* in Italy and Austria. Reported from South Carolina.

Septoria evonymi Rbh. Large pale-brown leaf spots on *E. europaea* in Italy, Russia, and Germany. Reported from Virginia.

Septoria evonymi-japonicae Pass. On leaves of *E. japonica* in Italy.

Septoria evonymina Sever. On *E. japonica* in Italy.

Septoria japonicae Oud. Large pale-brown leaf spots on *E. japonica* in Holland.

Septoria semicircularis Sacc. and Scalia. On leaves of *E. fimbriatus* in Portugal.

EUPATORIUM. Thoroughwort. Boneset. Mist flower. Perennial herbs, the tropical species shrubby.

Aecidium ampliatrum Jacks. and Holw. Leaf rust on *Eupatorium* sp. in Costa Rica.

Aecidium eupatorii Diet. Rust pustules on large yellow circular leaf spots on *Eupatorium* sp. in Brazil.

Aecidium heteromorphum Speg. Leaf rust on *Eupatorium* sp. in Argentina.

Aecidium paramense Mayor. Rust on leaf blades and petioles and stems of *E. obscurifolium* in Colombia.

Aecidium roseum Diet. and Holw. Golden rust pustules on red or purple leaf spots on *Eupatorium* sp. in Mexico.

Baeodromus eupatorii Arth. Brown rust pustules on leaves and stems of *E. aschenbornianum* and *E. pazcuarense* in Mexico and Guatemala.

Cionothrix praelonga (Wint.) Arth. Yellow rust pustules on leaves of *Eupatorium* spp. in Mexico, Guatemala, Costa Rica, Trinidad, Colombia, Ecuador, and Brazil.

Coleosporium eupatorii Arth. Golden rust pustules on leaves of *E. chinense*, *E. collinum*, *E. macrophyllum*, and *E. oerstedianum* in Porto Rico, Cuba, Guatemala, Costa Rica, Nicaragua, Colombia, and Formosa.

Cronartium andinum Lagh. Brown rust pustules on leaves of *E. glutinosum* in Ecuador.

Cronartium eupatorinum Speg. Leaf rust on *Eupatorium* sp. in Argentina.

Mycosphaerella eupatoricola Petr. On leaves of *E. cannabinum* in Bohemia and Silesia.

Phyllosticta eupatoricola Kab. and Bub. Irregular, often confluent, dull-brown leaf spots on *E. cannabinum* and *E. odoratum* in Porto Rico and Bohemia.

Phyllosticta eupatorii Allesch. Small subcircular dull-brown to ashen, often confluent, leaf spots withdull-purple margins on *E. cannabinum* in Germany.

Phyllosticta eupatoriina Thuem. Subcircular ashen leaf spots with purple borders on *E. cannabinum* in Italy and Portugal. Reported from Illinois and New Jersey.

Puccinia aegopogonis Arth. and Holw. Brown leaf rust on *E. mairetianum*, *Aegopodium cenchroides*, and *A. tenellus* in Guatemala.

Puccinia basisporula Jacks. and Holw. Leaf rust on *E. mairetianum* and *E. rafaelense* in Guatemala.

Puccinia cacheutensis Speg. Brown rust pustules on leaves and branches of *E. patens* in Argentina.

Puccinia espinosarum Diet. and Holw. Brown to black rust pustules on leaves of *E. espinosarum*, *E. smithii*, *E. sordidum*, and *E. spiraeaefolium* in Mexico.

Puccinia eupatorii Diet. Leaf rust on *E. ballotaefolium*, *E. iresinoides*, *E. macrocephalum*, and *E. viridiflorum* in Trinidad.

Puccinia eupatoricola Mayor. Leaf rust on *E. pycnocephalum* and *E. schiedeanum* in Colombia.

Puccinia eupatorii-columbiani Mayor. Leaf rust on *E. columbianum* and *E. inulaefolium* in Colombia and Trinidad.

Puccinia hodgsoniana Kern. Leaf rust on *E. phoenicolepis* and *E. schultzii* in Guatemala.

Puccinia horrida Lagh. Cinnamon-brown rust pustules on leaves of *Eupatorium* sp. in Ecuador.

Puccinia inanipes Diet. and Holw. Brown to black rust pustules on leaves of *E. brevipedis*, *E. hirsutum*, and *E. tubiflorum* in Mexico.

Puccinia inermis Jacks. and Holw. Powdery brown rust pustules on leaves of *Eupatorium* sp. in Costa Rica.

Puccinia noackii Syd. Dark-brown rust pustules on leaves of *Eupatorium* sp. in Brazil.

Puccinia pachyspora Diet. Black rust pustules on leaves and stems of *E. oblongifolium* in Brazil.

Puccinia rosea Roth. See Ageratum.

Puccinia solidipes Jacks. and Holw. Brown leaf rust on *E. tubiflorum* in Guatemala and Mexico.

Puccinia tinctoria Speg. Brown rust pustules on leaves of *E. prasifolium* and *E. tinctorium* in Argentina and Paraguay.

Pucciniosira eupatorii Lagerh. Leaf rust on *E. aschenbornianum* and *Eupatorium* sp. in Guatemala and Ecuador.

Septoria albo-maculans Syd. Circular to irregular leaf spots with raised margins on *E. nubigenum* and *E. pomaderrifolium* in Colombia and Guatemala.

Septoria eupatorii Rob. and Desm. Numerous small subcircular gray-white leaf spots on *E. cannabinum* in Italy, France, and Germany. Reported from the lower Mississippi Valley.

Syncarpella castagnei (Speg.) Theiss. and Syd. Black stromata on brown, indistinct leaf spots on *E. tinctorium* in Brazil.

Uredo eupatoricola P. Henn. Brown leaf rust on *Eupatorium* sp. in Brazil.

Uredo scopigena P. Henn. Rust on leaves and stems of *Eupatorium* sp. in Brazil.

Uredo suspecta Jacks. and Holw. Brown rust pustules on leaves of *E. daleoides* in Costa Rica.

EUPHORBIA. SPURGE. Poinsettia. Plants with milky juice and very diverse habit, from succulent cactus-like plants to low or prostrate herbaceous weeds.

Cercospora euphorbiae Pat. Circular gray leaf spots on *Euphorbia* sp. in Ecuador.

Colletotrichum euchroum Syd. Anthracnose, destroying the leaves of *E. antiquorium* and *E. neriifolia* in China and the Philippines.

Endophyllum euphorbiae-silvaticae (DC.) Wint. Yellow rust pustules on leaves of *E. amygdaloides* and *E. silvatica* in Europe.

Erysiphe taurica Lév. See Althaea.

Melampsora euphorbiae (Schub.) Cast. Yellow and brown to black rust pustules on leaves and stems of *Euphorbia* spp. in Europe, Egypt, and Tripoli. Sparingly introduced into the United States on *E. cyparissias*.

Melampsora euphorbiae-amygdaloides Muell. Leaf rust on *E. amygdaloides* in Europe.

Melampsora euphorbiae-dulcis Otth. Golden and brown to dark-brown rust pustules on leaves and stems of *Euphorbia* spp. in Japan and Europe.

Melampsora euphorbiae-engleri P. Henn. Leaf rust on *E. engleri* in Tanganyika.

Melampsora euphorbiae-gerardianae W. Muell. Rust on stems and leaves of *Euphorbia* spp. in Asia Minor, Tripoli, Persia, India, and Europe. Also known from Indiana.

Melampsora gelmii Bres. Yellow and dark-brown rust pustules on leaves of *Euphorbia* spp. in Persia, north Africa, and Europe.

Melampsora helioscopiae Wint. Yellow and dark-brown to black rust pustules on leaves and stems of *Euphorbia* spp. (over 30 reported species) in Europe, Egypt, Abyssinia, Italian North Africa, Tunis, Asia Minor, India, Japan, and Ceylon.

Mycosphaerella canariensis Tass. On stems of *E. canariensis* in Italy.

Ovulariopsis erysiphoides Pat. and Har. White erysiphoid spots on leaves of *E. balsamifera* in central Africa.

Peronospora andina Speg. Downy mildew deforming the leaves of *E. rhytisperma* in Argentina.

Peronospora cyparissiae De By. Downy mildew on *E. cyparissias* in central Europe.

Peronospora esulae Gäum. Downy mildew on leaves of *E. esula* in central Europe.

Peronospora valesiaca Gäum. Downy mildew on leaves of *E. gerardiana* in Switzerland.

Phoma baldratii Bacc. On stems of *E. tirucalli* in Eritrea.

Phragmodothis asperata Syd. On *Euphorbia* sp. in the Union of South Africa.

Phyllosticta euphorbiaecola P. Brun. Subcircular brown leaf spots on *E. amygdaloides* in France.

Phyllostictiella euphorbiae (Roum.) Tass. On leaves of *E. silvatica* in France.

Puccinia euphorbiae P. Henn. and var. **longipes** Syd. Leaf rust on *E. agowensis* and *E. eritrea* in Abyssinia and *E. calyculata*, *E. cotinifolia*, and *Euphorbia* sp. in Mexico. Reported from Minnesota.

Puccinia intumescens (Syd.) Holw. Yellow aecial and black powdery telial sori on leaves of *E. calyculata* in Mexico.

Ramularia euphorbiae (Cast.) Sacc. Whitish areas on leaves of *E. peplus* in France.

Septoria bractearum Mont. Rufous spots on bracts on *E. serrata* in France and Spain.

Septoria euphorbiae Gucp. Small subcircular olivaceous leaf spots on *E. amygdaloides*, *E. angulata*, *E. esula*, and *E. peplus* in Russia and France.

Septoria euphorbicola Höll. Circular olive-brown leaf spots on *E. procera* in Hungary.

Septoria hariotiana Sacc. White leaf spots with narrow dark-purple margins on *E. palustris* and *E. pilosa* in France and Spain.

Septoria kalchbrenneri Sacc. On leaves of *E. aspera*, *E. palustris*, and *E. silvatica* in Austria and Germany.

Septoria media Sacc. and Brun. Subcircular, then confluent, brown leaf spots with gray-white centers on *E. amygdaloides* and *E. palustris* in France and Yugoslavia.

Septoria thuemeniana Pass. Attacks leaves, stems, and twigs of *E. exigua* in Denmark and Italy.

Uredo cornui Har. Brown leaf rust on *Euphorbia* sp. in Ecuador.

Uredo euphorbiae-pudiflorae P. Henn. Dull-brown rust pustules on yellow leaf spots on *E. nudiflora* in Jamaica.

Uredo velata E. and E. Brown leaf rust on *E. cordata* in Hawaii.

Uromyces alpestris Tranzsch. Brown to black rust pustules on leaves and stems of *E. cyparissias* in Europe.

Uromyces andinus P. Magn. Powdery chestnut-brown rust pustules on leaves of *E. chilensis*, *E. collina*, and *E. portulacoides* in Chile and Argentina. Reported from Utah.

Uromyces astragali (Opiz.) Sacc. See Astragalus.

Uromyces bresadolae Tranzsch. Brown rust pustules on leaves of *E. angulata* in Austria.

Uromyces cristulatus Tranzsch. Dark-brown to black rust pustules on leaves of *E. girardiana* and *E. petrophila* in Bohemia.

Uromyces excavatus (DC.) Lév. Leaf rust on *E. angulata*, *E. dulcis*, *E. glariosa*, *E. pubescens*, and *E. verrucosa* in Europe.

Uromyces fischeri-eduardi P. Magn. See Vicia.

Uromyces haussknechtii Tranzsch. Brown rust pustules on leaves of *E. spinosa* and *E. thamnoides* in Syria, Italy, Dalmatia, and France.

Uromyces hermonis P. Magn. Leaf rust on *E. caudiculosa* in Asia Minor.

Uromyces kalmusii Sacc. Chestnut-brown rust pustules on leaves of *E. cyparissias* and *E. esula* in Manchuria and central Europe.

Uromyces kawakamii Syd. Leaf rust on *E. serrulata* in Formosa.

Uromyces laevis Koernicke. Dark-brown rust sori on leaves of *E. gerardiana* in Russia, France, Switzerland, Holland, Austria, and Germany.

Uromyces loti Blytt. See Lotus.

Uromyces mayorii Tranzsch. Leaf rust on *E. orbiculata* in Colombia.

Uromyces monspessulanus Tranzsch. Brown rust pustules on leaves of *E. serrata* in France and Spain.

Uromyces natalensis P. Magn. Powdery brown rust pustules on leaves of *E. gueinzii* in the Union of South Africa.

Uromyces pisi (Pers.) Wint. See Pisum.

Uromyces scutellatus (Schrank.) Lév. Leaf rust on *Euphorbia* spp. in Europe. Reported from Colorado.

Uromyces striatellus Tranzsch. Brown leaf rust on *E. hebecarpa* in Persia.

Uromyces striolatus Tranzsch. Leaf rust on *E. cyparissias* and *Euphorbia* sp. in Turkestan, Italy, France, and Switzerland.

Uromyces sublevis Tranzsch. Dark-brown to black rust pustules on leaves of *Euphorbia* spp. in [illegible] Syria, and Europe.

Uromyces tinctoricola P. Magn. Leaf rust on *Euphorbia* spp. in Kurdistan, Persia, Syria, Anatolia, Spain, France, Russia, Macedonia, Austria, and Germany.

EUPHORBIA—Continued.
Uromyces tordillensis Speg. Powdery brown rust pustules on leaves of *E. ovalifolia* and *E. serpens* in Argentina and Uruguay.
Uromyces tuberculatus Fckl. Cinnamon-brown to black rust pustules on leaves and stems of *E. exigua*, *E. hissarica*, and *E. platyphyllos* in Turkestan, Spain, France, Switzerland, and Germany.
Uromyces uleanus Diet. Brown, powdery, rust pustules on leaves of *E. stenophylla* in Brazil.
Uromyces undulatus Tranzsch. Leaf rust on *Euphorbia* sp. in Turkestan.
Uromyces winteri Wettst. Black rust pustules on leaves of *E. falcata* and *Euphorbia* sp. in Tripoli, Asia Minor, and Turkestan.
EURYA. Shrubs.
Aulographum euryae Syd. Large irregular leaf spots on *E. sinensis* in Japan.
Catacauma euryae (Racib.) Theiss. and Syd. Black stromata on circular, yellow-green leaf spots on *E. acuminata* and *E. japonica* in the Philippines and Java.
Exobasidium euryae Syd. and Butl. Causes hypertrophy of flowers and fruit of *E. acuminata* in India.
Phyllachora transiens Syd. and Butl. Black stromata on minute indefinite yellow leaf spots on *E. acuminata* in India.
Septoria euryae P. Henn. Dull-brown, then white leaf spots on *E. canescens* in Ecuador.
EVELYNA. See Orchidaceae.
EVODIA. Ornamental shrubs grown for their handsome foliage.
Bacterium citri Hasse. See Citrus.
Cercospora evodiae Syd. Small yellow leaf spots on *E. meliaefolia* in Formosa.
Coleosporium evodiae Diet. Powdery golden rust pustules on leaves of *E. meliaefolia* in Japan and Formosa.
Phyllosticta evodiae Cke. Leaf spots on *E. accedens* in Australia.
EVOLVULUS. Annual or perennial prostrate or erect herbs.
Cercospora balansae Speg. On leaves of *Evolvulus* sp. in Brazil.
Helminthosporium balansae Speg. Indefinite, olivaceous spots, often involving entire leaf blade of *Evolvulus* sp. in Brazil.
Puccinia desertorum Syd. Yellow-brown rust pustules on leaves and stems of *E. alsinoides* in tropical Africa.
Puccinia enecta Speg. Dark-brown rust pustules on leaves and stems of *Evolvulus* sp. in Argentina.
Puccinia tuyutensis Speg. Brown rust pustules on leaves and stems of *E. falcatus* in South America.
Uredo evolvuli Speg. Powdery pale-brown rust pustules on leaves and stems of *E. nummularius* and *E. sericeus* in Argentina and Venezuela.
EXACUM. Herbs, cultivated for their blue, white, or lilac flowers.
Coleosporium exaci Syd. Golden rust pustules on leaves of *E. tetragonum* in the Philippines.
FABA. See Vicia.
FAGELIA. See Calceolaria.
FAGOPYRUM. BUCKWHEAT.
Ascochyta fagopyri Theum. and var. **italica** Trav. On leaves of *F. vulgare* (*F. esculentum*) in Russia, Italy, and Germany. Reported from Vermont.
Fusicladium fagopyri Oud. On leaves of *F. vulgare* (*F. esculentum*) in Holland.
Phyllosticta polygonorum Sacc. See Polygonum.
Phytophthora parasitica Dast. See Ricinus.
Puccinia fagopyri Barcl. Brown to black rust pustules on leaves of *F. vulgare* (*F. esculentum*) in India.
Ramularia curvula Fautr. On leaves of *F. vulgare* in Europe.
Sclerotinia fagopyri Hori. Sclerotia form in diseased seed of *F. vulgare* in Japan.
Sphacelotheca fagopyri Syd. and Butl. Smut forming dark-violet sori in ovaries of *F. vulgare* in India.
FAGUS. BEECH. Timber and ornamental trees.
Actinonema fagicola Allesch. Subcircular spots causing premature leaf-fall and swelling of buds of *F. sylvatica* in Germany.
Ascochyta fagi Wor. On *Fagus* sp. in Russia.
Clasterosporium epiphyllum (Lév.) Sacc. On leaves and fruit of *F. sylvatica* in France.
Cryptostictus niessli Oud. On leaves of *F. sylvatica* in Holland.
Cyttaria berteri Berk. Yellow to golden obovate or turbinate fruiting bodies on branches of *F. obliqua* in Patagonia.
Cyttaria darwinii Berk. Causes a wood rot of branches of *F. antarctica* and *F. betuloides* in Chile.
Cyttaria gunnii Berk. Rotting branches of *F. cunninghamii* in Tasmania and Victoria and fruiting in dense clusters.
Cyttaria harioti Fisch. Subglobose brown fruiting bodies on rotted branches of *F. antarctica* and *F. betuloides* in Chile.
Cyttaria hookeri Berk. Yellowish to cinnamon-colored fruiting bodies on rotted branches of *F. antarctica* and *F. obliqua* in Patagonia.
Discosia maculiformis Syd. On *F. sylvatica* in Japan.
Laestadia faginea (Cke. and Plowr.) Sacc. On leaves of *F. sylvatica* in Great Britain.
Leptosphaeria valdobbiae Ferr. On leaves of *F. sylvatica* in Italy.
Linospora faginea Sacc. Discolored areas on leaves of *F. sylvatica* in Italy and France.
Melasmia antarctica Speg. On branches of *F. antarctica* in Patagonia.
Mikronegeria fagi Diet. and Neg. Yellow to rufous rust pustules on leaves of *F. obliqua* and *F. procera* in Chile.
Mycosphaerella fagi (Awd.) Lind. On leaves of *F. sylvatica* in Europe.
Phyllosticta fagi Oud. Pale-brown, often confluent, leaf spots on *F. sylvatica* in Holland.
Phyllosticta faginea Bres. Small subcircular dull-brown leaf spots on *F. sylvatica* in Germany.
Phytophthora fagi R. Hartig. Downy mildew attacking the cotyledons of seedlings causing a serious "damping-off" disease in Europe. Among the hosts are *F. grandifolia*, *F. sylvatica*, *Abies* spp., *Acer palmatum*, *Acer* sp., *Fraxinus* spp., *Larix* sp., *Picea* sp., *Pinus montana*, *P. sylvestris*, and *Robinia pseudoacacia*. The cotyledons and basal portions of diseased stems turn brown.
Plowrightia noxia (Ruhl.) Sacc. See Castanea.
Septoria fagi Awd. and f. **amphigena** D. Sacc. On leaves of *F. sylvatica* in Italy, Germany, and Austria.
Septoria fagicola Speg. On leaves of *F. betuloides* in Patagonia.
Sphaeronaema fagi Oud. On leaves of *F. sylvatica* in Holland.
Sphaeronaema fagineum Oud. On leaves of *F. sylvatica* in Holland.
Uncinula curvispora K. Hara. Powdery mildew on leaves of *F. sylvatica* in Japan.
FARADAYA. Climbing shrubs allied to *Clerodendron*.
Phyllosticta faradayae Sacc. On leaves of *F. papuana* in Malaya.

FATSIA. Shrubs or small trees. Some species are put under *Tetrapanax*.
Aecidium fatsiae Syd. Leaf rust on *Tetrapanax* (*F. papyrifera*) in Formosa.
FEDIA. See Patrinia.
FEIJOA. Tropical fruit trees.
Catacauma feijoae (Rehm.) Theiss. and Syd. Shiny black stromata on leaves of *Feijoa* sp. in Brazil
Schizothyrium hypodermoides Rehm. On leaves of *Feijoa* sp. in Brazil.
FERONIA. Spiny deciduous trees with hard-shelled fruits, related to *Citrus*.
Bacterium citri Hasse. See Citrus.
Corticium salmonicolor B. & Br. See Citrus.
FERONIELLA. Small spiny trees related to *Feronia*.
Bacterium citri Hasse. See Citrus.
Corticium salmonicolor B. & Br. See Citrus.
FERULA. GIANT FENNEL. Hardy herbs.
Aecidium ferulae Rouss. and Dur. Rust pustules on leaves and petioles of *F. communis* and *F. tingitana* in French North Africa, Sardinia, France, Switzerland and Belgium.
Puccinia elliptica Lindr. Leaf rust on *F. longifolia* in Russia.
Puccinia ferulae Rud. Powdery yellow and dark-brown rust pustules on leaves and stems of *F. communis* and *Ferulaga galbanifera* in Italy, France, and Austria.
Puccinia libani P. Magn. Rust on leaves and stems of *F. nodiflora, Cachrys gonicarpa, C. odonto calyx*, and *Ferulago* spp. in Asia Minor, Persia, Turkestan, Russia, Finland, Italy, and Greece.
Puccinia sogdiana Kom. Brown rust pustules on leaves of *F. jaeschkeana* and *F. rigidula* in Turkestan.
Uromyces ferulae Juel. Yellow and powdery brown rust pustules on leaf blades, petioles, and stems of *F. assoi* and *F. communis* in Algeria, Sicily, Corsica, and Spain.
FESTUCA. FESCUE. Annual or pennial grasses, some species cultivated for ornament or as pasture grass.
Cladochytrium graminis Busgen. This fungus attacks and destroys the roots of *F. ovina, Dactylis glomerata, Panicum* sp., *Poa annua*, and other grasses in Great Britain and Germany. The disease kills out the grass in patches, which are small and yellow at first, finally becoming of considerable size, irregular in shape, and brown in color.
Dilophia graminis (Fckl.) Sacc. See Triticum.
Hypochnus fuciformis (Berk.) McAlp. See Lolium.
Leptosphaeria culmicola (Fr.) Karst. See Bromus.
Leptosphaeria kerguelensis P. Henn. On leaves of *F. kerguelensis* in Kerguelen Island.
Ophiobolus carlceti (B. & Br.) Sacc. See Triticum.
Phyllachora silvatica Sacc. Ovate to oblong dark-brown stromata on leaves of *F. duriuscula* in Spain and Italy.
Phyllostieta paleicola P. Henn. On leaves and palea of *F. erecta* in Kerguelen Island.
Physalospora festucae (Lib.) Sacc. See Andropogon.
Puccinia gibberosa Lagerh. Dark-brown to black rust pustules on leaves of *F. sylvatica* in Switzerland and Germany.
Puccinia mellea Diet. and Neg. Brown leaf rust on *F. muralis* in Chile.
Sclerospora macrospora Sacc. See Triticum.
Septoria festucae Died. On leaves of *F. gigantea* in Central Europe.
Septoria festucae-silvaticae Died. On leaves of *F. sylvatica* in Central Europe.
Tilletia sterilis Ule. Leaf smut on *F. ovina* and *Koeleria cristata* in Germany.
Uredo abscondita Fautr. Brown linear rust pustules on leaves of *F. heterophylla* in France.
Uredo kerguelensis P. Henn. Brown rust pustules on yellow leaf spots on *F. kerguelensis* in Kerguelen Island.
Urocystis festucae Ule. Smut on culms and leaves of *F. ovina* in Germany.
Uromyces cuspidatus Wint. Elongate dark-brown rust sori on leaves of *F. commersonii* in Chile.
Uromyces festucae Syd. Black rust pustules on leaves of *F. arundinacea, F. ovina*, and *F. rubra* in Spain, Bohemia, Russia, Sweden, and Germany. The aecial stage occurs on *Ranunculus bulbosus* and *R. illyricus*.
Uromyces fuegianus Speg. Leaf rust on *F. purpurascens* in Chile.
Uromyces ranunculi-festucae Jaap. Powdery golden to brown rust pustules on leaves of *F. ovina* in Germany. The aecial stage occurs on *Ranunculus bulbosus*.
Ustilago festucae-tenellae P. Henn. Rachides and flowers deformed and converted into olivaceous-black powdery masses of smut spores. On *F. tenella* in Mexico.
Ustilago sphaerocarpa Syd. Black powdery smut sori replacing ovaries of *F. amplissima* in Mexico.
FICARIA. See Ranunculus.
FICUS. FIG. Banyan. A large genus of tropical trees, shrubs, and climbers. Many species of economic importance for fruit, ornament, rubber, and other products.
Acrotheciella javanica Koord. On leaves of *F. elastica* in Java.
Alternaria fici Farneti. Causes atrophy of fruit of *F. carica* in Italy.
Anisochora topographica (Speg.) Theiss. and Syd. Black irregular stromata on leaves of *Ficus* sp. in Brazil.
Aphelenchus olesistus Ritz. Bos. See Begonia.
Ascochyta caricae Rabh. Red-brown leaf spots on *F. carica* in France and Austria.
Atichia treubii V. Hoeh. Superficial fruiting bodies on leaves of *F. elastica* in Java.
Bacterium fici Cav. This bacterium is said to cause a browning of the tissues of twigs of *Ficus* sp in Italy.
Catacauma apoense Syd. Scattered irregular dull-black stromata on leaves of *F. apoensis, F. nervosa*, and *F. sibulanensis* in the Philippines.
Catacauma aspideum (Br.) Theiss. and Syd. and ff. **fici-albae** and **spinifera** Theiss. and Syd. Black stromata on leaves of *F. alba, F. banahaensis, F. fastigiata, F. fulva, F. heterophylla, F. minahassae, F. odorata, F. repens, F. riedeli, F. scandens, F. spinifera, F. tomentosa, F. ulmifolia*, and *F validicaudata* in Java, India, Ceylon, Malaya, the Philippines, and the Union of South Africa.
Catacauma circinatum Syd. Circular black stromata on leaves of *F. chrysolepis* and *F. odorata* in the Philippines.
Catacauma decaisneanum (Lév.) Theiss. and Syd. Black stromata on leaves of *F. lacta* in Tonkin.
Catacauma elmeri Syd. Small scattered black stromata on leaves of *F. blepharostoma, F. manilensis, F. minahassae*, and *F. ulmifolia* in the Philippines.
Catacauma fici-fulvae Koord. Black stromata on leaves of *F. sinuosa* and *F. validicaudata* in the Philippines.
Catacauma fici-obscurae (Koord.) Theiss. and Syd. Shiny-black stromata on brown leaf spots on *F. obscura* in Java.

FICUS—Continued.

Catacauma garciae Theiss. and Syd. Black stromata on small greenish leaf spots on *F. garciae* in the Philippines.

Catacauma grammicum (P. Henn.) Theiss. and Syd. Black linear stromata on yellow-brown leaf spots on *F. capensis* in the Congo and the Union of South Africa.

Catacauma infectorium (Cke.) Theiss. and Syd. Shiny-black irregular stromata on leaves of *F. infectoria*, *F. religiosa*, and *F. ulmifolia* in India and the Philippines.

Catacauma irregulare (W. and C.) Theiss. and Syd. Black stromata on leaves of *Ficus* sp. in Angola.

Catacauma karnbachii (P. Henn.) Theiss. and Syd. Dull-black stromata on circular brown leaf spots on *F. flavocortica*, *F. heterophylla*, and *F. ulmifolia* in New Guinea and the Philippines.

Catacauma lagunense Syd. Shiny-black stromata on leaves of *F. hauili* in the Philippines.

Catacauma microcentum (B. and Br.) Theiss. and Syd. and var. **graphica** Theiss. and Syd. Circular black stromata on leaves of *F. mysorensis*, *Ficus* sp., and *Artocarpus* sp. in Ceylon, India, and the Philippines.

Catacauma merrillii Syd. Black stromata on leaves of *F. lucbanensis* in the Philippines.

Catacauma microplacum Syd. Tar-spot disease of leaves of *Ficus* sp. in Amboina.

Catacauma nipponicum Syd. Black circular shiny stromata on leaves of *F. nipponica* in Japan

Catacauma repens (Cd.) Theiss. and Syd. Shiny-black stromata on leaves of *F. gossypina* and *F. religiosa* in Uganda, the Congo, and India.

Catacauma robinsonii Syd. Tar-spot on leaves of *Ficus* sp. in Amboina.

Catacauma sanguineum Theiss. and Syd. Small black stromata on reddish-yellow leaf spots on *F. heterophylla* and *F. odorata* in the Philippines.

Catacauma schweinfurthii (P. Henn.) Theiss. and Syd. Black stromata on leaves of *F. palmata* in Abyssinia.

Catacauma ulcerata (Mass.) Theiss. and Syd. Dull-black stromata on leaves of *F. ovata* in Uganda.

Catacauma urophyllum (V. Hoeh.) Theiss. and Syd. Linear black stromata on leaves of *F. urophylla* in Java.

Catacauma valsiforme (Rehm.) Theiss. and Syd. Black stromata on brown leaf spots on *F. crassitora* in the Philippines.

Cercospora annulata Cke. Circular, concentrically zoned, pale-brown leaf spots on *F. hispida* in India.

Cercospora elastica A. Zimm. Gray-brown leaf spots on *F. elastica* in Java.

Cercospora rubro-cincta Pat. On leaves of *Ficus* sp. in Indo-China.

Cercospora rufula Syd. Large circular rufous leaf spots on *Ficus* sp. in British North Borneo.

Cercospora urostigmatis P. Henn. Circular to angular brown leaf spots on *Ficus* (*Urostigma*) sp. in Brazil.

Cladosporium sicophilum Farneti. On fruit of *F. carica* in Italy.

Clasterosporium elasticae Koord. On bark of *F. elastica* in Java.

Clasterosporium javanicum Koord. On leaves of *F. elastica* in Java.

Coccodothella placida Syd. Black stromata on upper leaf surfaces on *F. oreodryadum* in Tanganyika.

Coleroa elasticae Koord. On leaves and branches of *F. elastica* in Java.

Corticium salmonicolor B. and Br. See Citrus.

Diplodia cacaoicola P. Henn. See Theobroma.

Eutypa crumpens Mass. See Theobroma.

Fomes lamaoensis Murr. See Hevea.

Fomes lignosus Klotzsch. See Hevea.

Fusicladium elasticae Koord. On leaves of *F. elastica* in Java.

Fusicladium fici Bacc. Circular brown leaf spots with red-brown borders on *Ficus* sp. in Abyssinia.

Gloeosporium pluggarii Speg. On leaves of *Ficus* (*Urostigma*) sp. in Brazil.

Gloeosporium sycophilum Trinch. Anthracnose on leaves of *F. elastica* in Italy.

Helminthosporium elastica Koord. On leaves of *F. elastica* in Java.

Helminthosporium ficinum Sacc. On *F. waassa* and *Ficus* sp. in the Philippines and Amboina.

Helminthosporium ficuum Rostr. Ashen leaf spots with dull-brown margins on *F. retusa* and *Ficus* sp. in Siam.

Helminthosporium ficuum Yates. On leaves of *F. caudatifolia* and *F. ulmifolia* in the Philippines. This species, if distinct, should be renamed, the name being occupied.

Mycosphaerella elasticae Koord. On leaves of *F. elastica* in Java.

Napicladium elasticae Koord. On leaves of *F. elastica* in Java.

Phaeosaccardinula ficicola P. Henn. Effuse dull-brown leaf spots on *Ficus* sp. in Tanganyika.

Phlyctaena ficuum P. Henn. Circular yellow leaf spots on *Ficus* sp. in Brazil.

Phomopsis cinerescens (Sacc.) Trav. Large cankers occur on the branches, rotting away the bark and sapwood and girdling and destroying involved limbs of *F. carica* in Great Britain, France, and Italy.

Phyllachora amamensis P. Henn. Circular to irregular groups of dull-black stromata on leaves of *F. capensis* and *Ficus* sp. in Tanganyika and the Union of South Africa.

Phyllachora aspideoides Sacc. and Berl. Dull-black stromata on leaves of *Ficus* sp. in Brazil.

Phyllachora catervaria (Br.) Sacc. Round black stromata on leaves of *F. hispida*, *F. merrillius*, and *F. oppositifolia* in India, Indo-China, Java, the Philippines, and Amboina.

Phyllachora cayennensis (DC.) Theiss. and Syd. A doubtful species on leaves of *F. roxburghi* and *Psidium guajava* in Brazil, Surinam, and India.

Phyllachora dawei Mass. Tar-spot on leaves of *Ficus* sp. in Uganda.

Phyllachora devriesei Koord. Black stromata on red-brown leaf spots on *F. leucantatoma* in Java.

Phyllachora effigurata Syd. Dull-black stromata on leaves of *Ficus* sp. in Brazil.

Phyllachora ficicola Allesch. and P. Henn. Round to elliptical shiny-black stromata on leaves of *Ficus* sp. in Brazil.

Phyllachora pseudes Rehm. Black stromata on leaves of *F. minahassae* and *F. nota* in the Philippines.

Phyllachora vinosa Speg. Smooth black stromata on violet leaf spots on *Ficus* sp. in Brazil.

Phyllosticta ambiguella Sacc. Large irregular gray-white leaf spots with narrow rufous margins on *F. rubiginosa* in Italy.

Phyllosticta caricae C. Mass. On leaves of *F. carica* in Italy.

Phyllosticta elasticae Koord. On leaves of *F. elastica* in Java.

Phyllosticta fici Bres. Circular gray-white leaf spots with dull-brown margins on *F. macrophylla* in Portuguese St. Thomas.

Phyllosticta ficicola Pat. Circular gray-white leaf spots on *F. carica* in Tunis and Italy.

FICUS—Continued.

Phyllosticta roberti Boy. and Jacz. Pale-brown leaf spots on *F. aurea* and *F. elastica* in France and the Bahamas. Reported from Florida.
Phyllosticta sycina Trav. On leaves of *F. heterophylla* in Italy.
Phyllosticta sycophila Thuem. Large brown leaf spots on *F. carica* in Victoria and Italy.
Physalospora atractina Syd. Small gray-brown leaf spots on *Ficus* sp. in Brazil.
Physalospora elasticae Koord. Attacks branches of *F. elastica* in Java as a wound parasite.
Phytophthora carica (Hara) Hori. A downy mildew on fruit of *F. carica* in Japan. Small, sunken areas appear which soon involve the entire fruit in a soft brown rot. A thick cottony mycelium covers the surface of rotted fruits, accompanied by a disagreeable odor. Fruits remaining on the trees mummify.
Phytophthora fici Ven. Causes a soft rot of fruit of *F. carica* in India.
Puccinia sepulta B. and C. Black leaf rust on *Ficus* sp. in Nicaragua.
Ramularia sycina Sacc. and D. Sacc. On leaves of *Ficus* sp. in Italy.
Rosellinia bunodes Sacc See Citrus.
Rosellinia echinata Mass. Causes a serious decay of roots, bringing about death of infected trees of *F. dubia* in Malacca and Malaya.
Schizochora elmeri Syd. Circular to elliptical dull-black stromata on lower leaf surfaces of *F. guyeri* in the Philippines.
Septogloeum elasticae Koord. Subcircular light-brown leaf spots on *F. elastica* in Java.
Septoria arcuata Cke. White circular leaf spots with purple margins on *F. benghalensis* and *Ficus* sp. in India and Abyssinia.
Septoria brachyspora Sacc. Pale-brown leaf spots with ochraceous margins on *F. elastica* in Denmark and Italy.
Septoria elasticae Koord. On leaves of *F. elastica* in Java.
Septoria piputae Cke. Irregular purple-brown leaf spots on *F. religiosa* in India.
Septoria pirottae Tassi. Brown leaf spots with rufous margins on *F. pumila* (*F. repens*) in Italy.
Septoriella conformis Sacc. On leaves of *F. alba* in Malaya.
Sporodesmium sicynum Thuem. Spots on leaves and stems of *F. carica* in Italy and Germany.
Trabutia abyssinica (P. Henn.) Theiss. and Syd. Irregular shiny-black stromata on leaves of *F. sycamorus* and *Ficus* sp. in Abyssinia and India.
Trabutia amboinensis Syd. On leaves of *F. hasskarlii* in Amboina.
Trabutia bengetensis Yates. On leaves of *F. benguetensis* in the Philippines.
Trabutia butleri Theiss. and Syd. Black stromata on leaves of *Ficus* sp. in India.
Trabutia chinense Yates. Black stromata on leaves of *Ficus* sp. in the Philippines.
Trabutia elmeri Theiss. and Syd. Scattered irregular black stromata on leaves of *F. banahaensis* in the Philippines.
Trabutia evansii Theiss. and Syd. Small circular black stromata on yellow or brown leaf spots on *Ficus* sp. in Portuguese East Africa.
Trabutia fici-dekdekenae Bacc. Black stromata on leaves of *F. dekdekena* in Abyssinia.
Trabutia fici-hochstetteri Bacc. Tar spot on leaves of *F. hochstetteri* in Abyssinia.
Trabutia ficuum (Niessl.) Theiss. and Syd. Shiny-black irregular stromata on leaves of *F. foveolata*, *F. garciae*, *F. infectoria*, *F. mysorensis*, *F. nipponica*, and *F. riedelii* in Japan, India, Portuguese East Africa, and the Union of South Africa.
Trabutia incrustans Racib. Black irregular stromata on leaves of *Ficus* sp. in Java.
Trabutia nervisequens (Lingl.) Theiss. and Syd. Black stromata on yellow leaf spots on *F. hochstetteri* and *Ficus* sp. in Abyssinia and the Union of South Africa.
Trabutia novoguineensis Theiss. and Syd. Black stromata on rust-brown leaf spots on *Ficus* sp. in New Guinea.
Trabutia vernicosa Theiss. and Syd. Irregular black stromata on leaves of *F. heterophylla* and *F. ulmifolia* in the Philippines.
Trabutiella microthyroides (P. Henn.) Theiss. and Syd. Black stromata on leaves of *F. erecta* in Japan.
Uncinula pirottiana Bacc. Powdery mildew on leaves of *Ficus* sp. in Abyssinia.
Volutella sp. Causes a trunk and branch canker of *F. elastica* in Italy.

FILIPENDULA. MEADOWSWEET. Hardy herbs grown for their showy panicles of varicolored flowers.

Ascochyta obducens Fckl. Large brown irregular spots destroying the leaves of *F. ulmaria* in Siberia and Germany.
Colletotrichum volutella Sacc. and Malbr. On stems of *F. ulmaria* in France.
Cylindrosporium filipendulae Thuem. Pale-yellow areas on leaves of *F. ulmaria* and *Spiraea salicifolia* in Denmark and Austria. Reported from Washington.
Mycosphaerella maculans Sacc. and Roum. On leaves of *F. ulmaria* in Russia, France, Belgium, and Germany.
Phyllosticta filipendulae Sacc. Subcircular gray-white leaf spots on *F. hexapetala* in Italy.
Phyllosticta filipendulina Sacc. and Syd. and var. **ulmariae** Sacc. Subcircular dull-brown leaf spots on *F. ulmaria* in Italy and France.
Phyllosticta ulmariae Thuem. Small irregular gray-white leaf spots on *F. ulmaria* in Scotland and Siberia.
Ramularia ulmariae Cke. Subcircular white spots on leaves of *F. hexapetala* and *F. palmata* in France, Denmark, and Germany.
Septoria quevillensis Sacc. Small dark-red leaf spots with pale centers on *S. ulmaria* in France.
Triphragmium anomalum Tranz. Leaf rust on *F. palmata* in Russia.
Triphragmium filipendulae (Lasch.) Pass. Orange-yellow rust pustules on leaf blades and petioles of *F. hexapetala* and *Ulmaria pentaphylla* in central and northern Europe.
Urocystis filipendulae Fckl. Black powdery smut sori on leaf petioles and nerves of *F. hexapetala* in Esthonia, Sweden, Denmark, and Germany.

FLACOURTIA. Tropical shrubs, one species (Governor plum) cultivated for its fruit.

Uredo uguressae Petch. Rust on fruit of *F. ramontchi* in Ceylon.

FLEMINGIA. Shrubs used as ornamentals.

Uromyces flemmingiae P. Henn. Brown powdery rust pustules on leaves of *Flemingia* sp. in the Congo.

FLUGGEA. Tropical shrubs, sometimes cultivated.

Nothoravenella japonica Diet. See Securinega.

FOENICULUM. FENNEL. Annual, biennial, or perennial herbs, sometimes cultivated.

Ascochyta foeniculina McAlp. On fruit of *F. vulgare* in Australia.
Cercospora foeniculi P. Magn. On leaves of *F. officinale* in Austria.
Erysiphe taurica Lév. See Althaea.
Mycosphaerella himantia (Pass.) Died. Leaf spot of *Foeniculum* sp. in Dalmatia.

FORSYTHIA. GOLDEN BELL. Shrubs grown for their abundance of yellow spring flowers.
Marsonia forsythiae Lind. Large ashen leaf spots with dull brown margins on *F. suspensa* (*F. fortunei*) in Denmark.
Phyllosticta forsythiae Sacc. Subcircular ochraceous leaf spots on *F. suspensa* in Denmark, Spain, France, and Italy.
Phytophthora syringae Kleb. See Syringa.
FORTUNELLA. KUMQUAT. Small trees, related to *Citrus*, grown for their yellow ornamental and edible fruit.
Bacterium citri Hasse. See Citrus.
FRAGARIA. STRAWBERRY.
Aphelenchus fragariae Ritz. Bos. This nematode causes a fasciation of *Fragaria* sp. in Europe known as the "brush" or "cauliflower" disease. Fleshy malformations take the place of leaves and flowers, or the flowers may appear free of the deformed leaves and be in turn caused to assume odd shapes. The diseased areas assume a deep blood-red color. Infested plants are stunted and fail to form fruit.
Aphelenchus olesistus Ritz. Bos. See Begonia.
Peronospora fragariae Roze. and Cornu. Downy mildew on leaves of *F. vesca* in France, Switzerland, Italy, and Russia. Also reported from Iowa.
Phleospora fragariae (Br. and Har.) Petr. On leaves of *F. vesca* and *Potentilla caulescens* in Europe.
Phragmidium fragariastri (DC.) Schroet. See Potentilla.
Phyllosticta grandimaculans Bub. and Krieg. Brown leaf spots on *F. vesca* in Denmark and Germany.
Puccinia fragariae Barcl. Yellow to brown rust pustules on leaves of *F. vesca* in India.
Septoria fragariae Desm. Large circular brown leaf spots with red margins on *Fragaria* spp. in Brazil, Chile, Siberia, and Europe. Possibly only another name for the imperfect stage of *Mycosphaerella fragariae*.
Thecaphora pallescens Fingerh. Doubtful species of leaf smut on *F. collina* in Germany.
Tylenchus dipsaci Kuehn. See Narcissus.
FRANKENIA. Low perennial evergreen shrubs.
Puccinia frankeniae Link. Leaf rust on *F. hirsuta*, *F. laevis*, and *F. pulverulenta* in Egypt, Tunis, Portugal, France, Belgium, Switzerland, and Russia.
FRAXINUS. ASH. Ornamental, shade, and timber trees.
Ascochyta fraxini Kab. and Bub. (*A. frazini* Oud.) On branches of *F. excelsior* and *F. ornus* in Europe.
Ascochyta fraxinicola Brun. Circular to oblong brown spots on twigs of *F. excelsior* in France.
Ascochyta metulispora B. and Br. Circular brown leaf spots on *Frazinus* sp. in Scotland.
Ascochyta orni Sacc. and Speg. On leaves of *F. ornus* in Italy.
Cercospora fraxini (DC.) Sacc. Large brown areas on leaves of *F. excelsior* and *F. ornus* in Russia and Italy.
Cercospora lumbricoides Turc. and Maffei. Subcircular to oblong brown leaf spots with red-brown margins on *Frazinus* sp. in Italy.
Laestadia fraxini Fautr. On leaves of *Fraxinus* sp. in France.
Phyllosticta ambigua Scalia. On leaves of *F. ornus* in Italy.
Phyllosticta diedickei Bub. and Syd. On leaves of *F. excelsior* in Germany.
Phyllosticta fraxinicola Carr. Subcircular to irregular dull-brown leaf spots on *F. excelsior* in France, Russia, and Germany. Reported from several localities in the United States.
Phyllosticta orni Bub. Circular dull-yellow leaf spots with narrow brown margins on *F. ornus* in Hungary.
Phyllosticta osteospora Sacc. See Morus.
Phyllosticta trappenii Oud. Large ochraceous leaf spots on *F. juglandifolia* in Holland.
Phytophthora fagi R. Htg. See Fagus.
Puccinia fraxini Kom. Powdery dark-brown rust pustules on leaves of *F. longicuspis* and *F. rhynchophylla* in Manchuria and Japan.
Sclerotium scutellatum A. S. See Acer.
Scolecotrichum fraxini Pass. Attacks the leaves of *F. ornus* in Italy.
Septoria elaeospora Sacc. Indefinite ochraceous leaf spots with brown margins on *F. excelsior*, *F. ornus*, and *F. pubescens* in Italy and Portugal.
Septoria orni Pass. Dull-brown effuse leaf spots on *F. excelsior* and *F. ornus* in Denmark, France, and Italy.
Uncinula fraxini Miy. Powdery mildew on leaves of *F. longicuspis* in Japan.
Uncinula salmoni Syd. Powdery mildew on leaves of *F. bungeana* in Japan.
Uncinula sengokui Salm. Powdery mildew on leaves of *F. bungeana* in Japan.
Venturia fraxini (Fr.) Aderh. On leaves of *F. excelsior* in northern Europe.
FREESIA. Cormous plants, cultivated for their flowers.
Phoma bulbicola Tassi. On bulbs of *F. odorata* in Italy.
Uromyces ecklonii Bub. Yellow-brown to black rust pustules on leaves of *F. refracta* in the Union of South Africa.
Uromyces freesiae Bub. Brown leaf rust on *F. odorata* in the Union of South Africa.
FREYCINETIA. Climbing shrubs.
Sphaerodothis merrillii (P. Henn.) Theiss. and Syd. Circular black stromata, shiny above, dull below, on leaves of *F. ensifolia* and *F. williamsii* in the Philippines.
Uredo freycinetiae Rac. Rust on yellow, sunken leaf spots on *F. imbricata* in Java.
FRITILLARIA. FRITILLARY. Crown-imperial. Guinea-hen flower. Hardy, low-growing, spring-blooming bulbous plants.
Uromyces aecidiiformis (Schlecht.) Thuem. See Lilium.
Uromyces fritillariae (schlecht.) Thuem. Yellow-brown to chestnut-brown rust pustules on leaf blades and petioles and stems of *F. meleagris* in Europe.
Uromyces lilii (Link.) Fckl. See Lilium.
Uromyces miurae Syd. Leaf rust on *F. kamtschatensis* in Japan.
Uromyces mogianensis Bub. Brown powdery rust pustules in sunken yellow leaf spots on *F. bucharica* and *F. gulceiardia* in Greece, Morocco, and Turkestan.
FUCHSIA. Shrubs or small trees, cultivated for their flowers.
Coleosporium fuchsiae Cke. Yellow rust pustules on leaves of *F. excorticata* in New Zealand.
Endomyces melliferae Rehm. On leaves of *Fuchsia* sp. in Brazil.
Phomopsis fuchsiae (Brun.) Sacc. On stems of *Fuchsia* sp. in Bohemia.
Phyllosticta fuchsiicola Speg. Gray-white circular leaf spots with broad purple margins on *F. serratifolia* Cheler.
Puccinia fuchsiae Syd. and Holw. Leaf rust on *F. microphylla*, *F. thymifolia*, and *Loprezia hirsuta* in Guatemala, Mexico, Costa Rica, and Panama.
Septoria fuchsiae Roum. Irregular pale-brown leaf spots on *F. coccinea* in France.

CHSIA—Continued.
Septoria fuchsiicola Syd. Subcircular to irregular brown leaf spots with reddish-purple raised margins on *F. coccinea* in Germany.
Uredo fuchsiae Arth. and Holw. Leaf rust on *F. splendens* in Guatemala.
MARIA. FUMITORY. Annuals cultivated for their flowers.
Ascochyta fumariae Höll. Indefinite brown areas on leaves of *F. schleicheri* in Hungary.
Peronospora affinis Rossm. Downy mildew on leaves of *F. capreolata*, *F. macrocarpa*, *F. officinalis*, *F. parviflora*, and *F. vaillanti* in Tunis and Europe.
Ramularia fumariae Speg. Small circular ashen leaf spots with violet borders on *F. capreolata* in Argentina.
Rhizoctonia napi West. See Brassica.
NCKIA. See Hosta.
NTUMIA. Tropical trees, one species cultivated for rubber.
Colletotrichum funtumiae Petch. Anthracnose on leaves of *F. elastica* in Ceylon.
Fomes lamaoensis Murr. See Hevea.
Nectria funtumiae Mass. Said to cause cankers on trunks of *F. elastica* in Uganda.
RCRAEA. Succulent desert plants resembling *Agave*.
Physalospora fourcroyae P. Henn. On leaves of *F. gigantea* in Tanganyika.
GEA. Liliaceous herbs with white, yellow, or rose flowers.
Heterosporium ornithogali Klotzsch. See Ornithogalum.
Puccinia megatherium Syd. Cinnamon-colored rust pustules on both leaf surfaces of *G. reticulata* in the Caucasus.
Puccinia pachyderma Wettst. Powdery cinnamon-colored rust pustules on both leaf surfaces of *G. caucasica*, *G. damascena*, *G. graeca*, *G. lutea*, *G. persica*, and *G. pusilla* in Assyria, Russia, and Karpatos Island (Asiatic Turkey).
Septoria commutata Bub. Indefinite yellow, then grayish, leaf spots on *G. lutea* and *G. pratensis* in Bohemia and Galicia
Synchytrium laetum Schroet. (*Pycnochytrium laetum* Schroet.) Forms small sulphur to golden-yellow punctiform galls on leaves, sepals and peduncles of *G. arvenis*, *G. fascicularis*, *G. lutea*, *G. silvatica*, *G. minima*, *G. pratensis*, and *Tulipa sylvestris* in Japan, Norway, Denmark, Russia, Austria, and Germany.
Synchytrium punctatum Schroeter. Forms small dirty-white to yellowish swellings or gall-like structures on leaves of *G. pratensis* in Austria and Germany.
Uromyces gageae G. Beck. Brown powdery rust pustules on both surfaces of leaves of *G. lutea*, *G. pratensis*, and *G. silvatica* in Europe.
Uromyces ornithogali Lév. Linear brown to dark-brown rust pustules on leaves of *G. arvensis*, *G. bohemica*, *G. lutea*, *G. minima*, *G. pratensis*, *G. pusilla*, *G. saxatilis*, *G. stenopetala*, *Muscari racemosum*, *Ornithogalum nanum*, *O. nutans*, and *O. umbellatum* in France, Great Britain, Spain, Portugal, Hungary, Persia, Austria, and Germany.
Ustilago ornithogali (Schm. and Kze.) Kuehn. Olive-brown, powdery smut pustules on leaves and scapes of *G. arvensis*, *G. bohemica*, *G. fibrosa*, *G. liotardi*, *G. pratensis*, *G. lutea*, *G. minima*, *G. pusilla*, *G. saxatilis*, *G. spathacea*, and *G. stenopetala* in Denmark and Italy. **U. ornithogali-erythronii** Clint. has been reported on *Erythronium* sp. in the United States.
AILLARDIA. Showy annual and perennial herbs grown in flower gardens and borders.
Septoria gaillardiae Speg. Ashen leaf spots with dull-brown margins on *G. doniana* in Argentina.
ALACTIA. Prostrate or twining leguminous, perennial herbs or shrubs, mostly tropical.
Phyllachora galacteae Earle. Irregular black stromata on leaves of *G. rudolphioides*, *G. striata*, and *G. tenuiflora* in the Bahamas and Porto Rico.
ALANTHUS. SNOWDROP. Spring-blooming bulbs with solitary white flowers.
Botrytis galanthina (B. and Br.) Sudw. Attacks the host plants as they appear above ground, distorting and finally rotting the leaves and flowers. A gray mold followed by black sclerotia forms over the diseased areas. The host is *G. nivalis* in England, Denmark, Holland, and Germany.
The species of *Botrytis* and *Sclerotium* attacking the various ornamental bulbous plants have never been carefully studied as to their interrelationships and it is not clear whether few or many species are involved, or whether one or several occur in the United States. With this fact in mind, importations of bulbs should be carefully watched.
Melampsora galanthi-fragilis Kleb. A rust characterized by sunken yellow spots up to 1.5 cm. in diameter on both surfaces of the leaves of *G. nivalis*, *Salix fragilis* and other *Salix* spp. in Russia, Bulgaria, Spain, Switzerland, Austria, Hungary, and Germany.
Puccinia galanthi Unger. Rust sori, powdery, round to elliptical, up to 6 mm. in diameter, brown to black in color. On *G. nivalis* in Austria, Hungary, and Germany.
Urocystis galanthi Pape. Smut sori in blue-gray linear spots on leaf blades, sheaths, and flower stalks of *G. nivalis* in Germany.
ALEGA. GOAT'S-RUE. Bushy perennial leguminous plants.
Ascochyta galegae Höll. Irregular dull-brown leaf spots on *G. officinalis* in Hungary.
Cercospora galegae Sacc. Oblong white leaf spots on *G. officinalis* in Italy.
Ramularia galegae Sacc. Subcircular sordid-white leaf spots on *G. officinalis* in Italy and France.
Uromyces galegae (Opiz.) Sacc. Leaf rust on *G. officinalis* in Italy and the Balkans.
Uromyces genistae-tinctoriae (Pers.) Wint. See Caragana.
ALEOPSIS. Annual weeds of the mint family.
Phyllosticta galeopsidis Sacc. Ochraceous leaf spots on *G. versicolor* in Italy.
Septoria cotylea Pat. and Har. Indefinite brown leaf spots on *G. ceratonica* and *G. tetrahit* in Spain, France, and Denmark.
ALIUM. BEDSTRAW. Weak, slender herbs with square stems and whorled leaves.
Aecidium molluginis Wurth. Leaf rust on *G. mollugo* in Switzerland.
Calloria quitensis Pat. On *Galium* sp. in Ecuador.
Fusicladium ruthenicum Petr. On leaves of *G. schultesii* in Europe.
Peronospora galii Fckl. Downy mildew on leaves of *G. mollugo*, *G. palustre*, and *G. uliginosum* in central and north Europe.
Peronospora galii veri Gäum. As above on *G. rerum*.
Peronospora silvatica Gäum. Downy mildew on leaves of *G. schultesii* and *G. silvaticum* in Switzerland, Hungary, Austria, and Germany.
Phakopsora punctiformis (Barcl. and Diet). Diet. Yellow-brown rust pustules on leaves of *G. aparine* in India.
Phyllosticta decipiens C. Mass. On leaves of *G. mollugo* in Italy.
Physalospora molluginis (Otth.) Sacc. On leaves and stems of *G. mollugo* in Switzerland.
Placosphaeria galii Sacc. On stems of *Galium* spp. in Europe.
Pseudopeziza autumnalis (Fr.) Karst. Black spots on leaves and stems of *G. boreale*, *G. mollugo*, *G. uliginosum*, *Asperula odorata*, and *Rubia tinctorum* in Siberia, Great Britain, France, Belgium, and Germany.

GALIUM—Continued

Puccinia celakovskyana Bub. Powdery brown rust pustules on leaves and stems of *G. cruciata* in Europe.

Puccinia extimia Arth. and Holw. Brown leaf rust on *G. mexicanum* in Guatemala.

Puccinia galii-elliptici Maire. Powdery brown rust pustules on leaves of *G. ellipticum* in Corsica.

Puccinia galii-silvatici Wurth. Leaf rust on *G. sylvaticum* in Switzerland.

Puccinia lagerheimii Lindr. Dark-brown rust pustules on leaves and stems of *G. sylvestre* in Switzerland.

Puccinia pallidefaciens Lindr. Dark-brown rust pustules on leaves and stems of *G. boreale* in Russia.

Septoria cruciatae Rob. and Desm. Dull-brown leaf spots with brown borders on *G. boreale*, *G. chersonense*, *G. cruciata*, *G. pedemontanum*, and *G. rotundifolium* in Europe.

Septoria galii-borealis P. Henn. (*S. galii-borealis* Bub. and Kab.) On leaves of *G. boreale* in Japan and Bohemia.

Septoria relicta Bub. On leaves of *G. relicta* in Bohemia.

Septoria urens Pass. On leaves of *G. tricorne* in Italy.

Synchytrium globosum Schroet. See Potentilla.

Thekopsora guttata (Schroet.) Syd. See Asperula.

Uromyces galii Diet. Rust on leaves and stems of *G. aparine* in Japan.

GALPHIMIA. Shrubs.

Uromyces galphimiae Diet. and Holw. Powdery cinnamon-brown to black rust pustules on *G. humboldtiana* in Mexico.

GARCINIA. MANGOSTEEN. GAMBOGE. Tropical fruit trees.

Ceuthospora garciniae Syd. On leaves of *G. mangostana* in the Philippines.

Corticium koleroga (Cke.) V. Hoeh. See Coffea.

Gamboge disease. A fruit disease due to an unknown cause is reported on *G. mangostana* in Ceylon.

Glocosporium garciniae Koord. Irregular dull-brown leaf spots on *G. dulcis* in Java.

Helminthosporium garciniae Petch. On leaves of *G. mangostana* in Ceylon.

Micropeltis garciniae P. Henn. Black radiate perithecia on leaves of *Garcinia* sp. in Tanganyika.

Niptera garciniae P. Henn. On leaves of *Garcinia* sp. in Tanganyika.

Pirostoma garciniae P. Henn. On leaves of *Garcinia* sp. in Tanganyika.

Zignoella garciniae P. Henn. Forms cankers on woody portions in which appear superficial, black, carbonous perithecia. Attacks *G. mangostana* in Malaya and Tanganyika, death of infected plants often resulting.

GARDENIA. WARNERIA. Ag. CAPE JASMINE. Tropical shrubs or small trees cultivated for foliage and flowers.

Corticium salmonicolor B. and Br. See Citrus.

Hemileia woodii Kalchbr. and Cke. Yellow rust sori as broad patches on leaves of *G. edulis*, *G. jasminoides*, and *G. radicans* in Java, China, and Queensland.

Phyllosticta gardeniae Tassi. Subcircular to irregular pale-yellow leaf spots on *G. jasminoides* (*G. florida*) in Italy.

Ramularia gardeniae C. Mass. On leaves of *G. grandiflora* in Italy.

Septoria gardeniae Sacc. On leaves of *Gardenia* sp. in Italy.

Uredo gardeniae-thunbergiae P. Henn. Rust pustules on yellow effuse leaf spots on *G. thunbergia* in the Union of South Africa.

GARRYA. SILK-TASSEL BUSH. Ornamental shrubs.

Ascochyta garryae Sacc. Brown leaf spots with dark borders on *G. elliptica* in France.

Phyllosticta garryaecola Pass. Subcircular brown leaf spots on *G. elliptica* in France.

Septoria garryae Roum. Subcircular to irregular, often marginal, brown, then ashen-gray, leaf spots on *G. elliptica* in France.

Septoria thuretii Brun. Pale-brown leaf spots with dull-brown margins on *G. thuretii* in France.

GARUGA. Tropical fruit trees.

Fomes lamaoensis Murr. See Hevea.

Kuehneola garugae Syd. Powdery yellow rust pustules on leaves of *G. abilo* in the Philippines.

GASTROLOBIUM. Australian shrubs.

Achorella gastrolobii (P. Henn.) Theiss. and Syd. On *G. spinosum* in Australia.

Aecidium stowardii Har. Leaf rust on *G. calycinum* in Australia.

Puccinia gastrolobii Diet. Cinnamon-brown rust pustules on leaves of *G. calycinum* in Australia.

Puccinia stowardii Har. Rust on leaves and branches of *G. calycinum* in Australia.

Uredo stowardii Har. Leaf rust on *G. calycinum* in Australia.

GAULTHERIA. WINTERGREEN. SALAL. Evergreen, erect or procumbent plants cultivated for their leaves, flowers, and fruit.

Pucciniastrum gaultheriae Syd. Rust on leaves of *G. nummularioides* in India.

GAYLUSSACIA. HUCKLEBERRY. Shrubs grown for their fruit. See also Vaccinium.

Cercospora gaylussaci Spegz. Angular spots on leaves of *Gaylussacia* sp. in Brazil.

Exobasidium gaylussaciae P. Henn. Irregular fleshy swellings occur on leaf blades and petioles and stems of *G. brasiliensis* in Brazil.

Phaeochora densa (B. and Br.) Theiss. and Syd. Irregular black stromata on leaves of *Gaylussacia* sp. in Brazil and Costa Rica.

GEISSORRHIZA. Half-hardy Iridlike bulbous plants.

Uromyces geissorrhizae P. Henn. Yellow rust pustules, becoming dark-brown, on both leaf surfaces of *G. rupestris*, *G. secunda*, and *Moraea ramosa* in the Union of South Africa.

GELTONOPLESIUM. Woody twiners in Australia.

Uredo geltonoplesii McAlp. Brown rust sori on leaves of *G. cymosum* in Australia.

GENIPA. West Indian shrubs and trees, one species grown for its fruit.

Phyllachora genipae Arth. and Dal. Black stromata on leaves of *G. americana* in Porto Rico.

GENISTA. BROOM. Ornamental shrubs grown for their handsome flowers.

Diaporthe inaequalis (Curr.) Nke. On *Genista* sp. in Europe.

Glocosporium garganicum Sacc. and D. Sacc. On branches of *G. michelii* in Italy.

Septoria cytisi Desm. See Laburnum.

Septoria nitida Ferr. On leaves of *G. germanica* in Italy.

Uromyces genistae-tinctoriae (Pers.) Fckl. See Caragana.

Ustilago albida Bub. Smut in anthers of *G. spathulata* in Yugoslavia.

Venturia genista (Fckl.) Wint. On branches of *G. germanica* in Austria and Hungary.

GENTIANA. GENTIAN. Herbs, cultivated for their blue flowers.

Cronartium delawayi Pat. Yellow to brown rust pustules on leaves of *G. picta* and *G. punctatosa* in China.

Cronartium gentianeum Thuem. Brown rust pustules on leaves and stems of *G. asclepiadea* in Russia, Bulgaria, and Austria.

Mycosphaerella gentianae Niessl. On stems of *G. asclepiadea* in China and Austria. Reported from Colorado.

NTIANA—Continued.
Peronospora carniolica Gäum. Downy mildew on leaves of *G. amarellum* in Austria.
Phyllosticta gentianellae Mass. Brown leaf spots with yellow margins on *G. asclepiadea* in Italy.
Ramularia evanida (Kuehn.) Sacc. Yellow-brown leaf spots on *G. asclepiadea* in Switzerland, Bulgaria, Yugoslavia, and Germany.
Septoria gentianae Thuem. Dull-brown, irregular leaf spots on *G. adscendens*, *G. macrantha*, and *G. scabra* in Japan, Siberia, and Russia.
Septoria microspora Speg. Large brown leaf spots on *G. asclepiadea* and *G. nivalis* in Italy and Japan.
Septoria montana Trav. Subcircular ochraceous leaf spots on *G. acaulis* in Italy.
Septoria tosevi Bub. Circular to oblong, often confluent, dull-yellow leaf spots on *G. cruciata* in Bulgaria and Austria. Reported from Colorado.
ERANIUM. CRANE'S BILL. Annual, biennial, or perennial herbs, some species cultivated.
Aecidium infrequens Barcl. Leaf rust on *G. nepalense* in Japan.
Cercospora geranii-sanguinei P. Henn. Dull-brown spots at tips of leaves of *G. sanguineum* in Norway.
Cercospora magnusiana Allesch. Ochraceous-olivaceous leaf spots on *G. sylvaticum* in Switzerland, Austria, and Germany.
Coleosporium geranii Pat. Brown rust pustules on leaves of *Geranium* sp. in China.
Euryachora geranii (Fr.) Schroet. Fungus of uncertain position on leaves of *G. sylvaticum* in Germany.
Graphium geranii Vogl. Circular to elliptical, often confluent, dull-brown leaf spots on *G. molle* in Italy.
Peronospora conglomerata Fckl. Downy mildew on leaves of *G. columbinum*, *G. dissectum*, *G. molle*, *G. phaeum*, *G. pusillum*, and *G. robertianum* in French North Africa and Europe.
Phyllostica traillii Sacc. Brown leaf spots on *G. sylvaticum* in Norway.
Plasmopara pusilla (De By.) Schroet. Downy mildew on leaves of *G. palustre*, *G. phaeum*, *G. pratense*, *G. pusillum*, and *G. sylvaticum* in Europe.
Puccinia callaquensis Neger. Rust pustules on leaves and stems of *G. berterianum* in Chile.
Puccinia cuneata Diet. Leaf rust on *Geranium* sp. in Japan.
Puccinia escharoides Syd. Powdery dark-brown rust pustules on leaf blades and petioles of *G. sinense* in central Africa.
Puccinia geranii-pilosi McAlp. Brown to black rust pustules on leaf blades and petioles of *G. pilosum* in Australia.
Puccinia morthieri Koern. Brown-black rust pustules on circular yellow leaf spots on *G. macrorrhizum*, *G. pyrenaicum*, *G. robertianum*, and *G. sylvaticum* in Europe and Siberia.
Puccinia saniniensis P. Magn. Powdery dark-brown rust pustules on leaves of *G. crenophilum* in Syria.
Ramularia dolomitica Kab. and Bub. On leaves of *G. phaeum* in Finland.
Ramularia geranii (West.) Fckl. Subcircular dull-brown leaf spots on *Erodium cicutarium* and *Geranium* spp. in Europe and Siberia. Reported from Louisiana.
Ramularia geranii-phaei (Mass.) Magn. On leaves of *G. phaeum* in Austria and Bohemia.
Ramularia geranii-sanguinei Massal. Rufous leaf spots on *G. sanguineum* in Italy.
Ramularia geranii-silvatici Vesterg. Angular-brown leaf spots on *G. sanguineum* and *G. sylvaticum* in Sweden and Esthonia.
Septoria daniloi Bub. On leaves of *G. columbinum*, *G. lucidum*, and *G. pallens* in Spain, Yugoslavia, and Russia.
Septoria expansa Niessl. Indefinite areas on leaves of *G. dissectum*, *G. palustre*, and *G. sanguineum* in France, Russia, and Bohemia.
Septoria geranii Rob. and Desm. Irregular olivaceous-brown leaf spots with purple margins on *G. molle*, *G. pusillum*, *G. robertianum*, *G. sanguineum*, *G. sylvaticum*, and *Pelargonium* sp. in Spain, France, Italy, Tunis, the Union of South Africa, and Germany.
Septoria geranii-nodosi Massal. Brown leaf spots on *G. nodosum* in Italy.
Uromyces geranii (DC.) Otth. and Wartm. Brown rust pustules on leaf blades and petioles of *Geranium* spp. (about 30 species) in Colombia, Europe, Japan, and the Union of South Africa. Several doubtful American references.
Uromyces kabatianus Bub. Yellow to brown rust pustules on circular yellow leaf spots on *G. molle* and *G. pyrenaicum* in Denmark, Sweden, Esthonia, Austria, and Germany.
Uromyces scariosus Berk. Brown leaf rust on *G. dissectum* and *G. potentilloides* in New Zealand.
Uromyces truncatulus Trott. Yellow-brown rust pustules on leaves of *G. striatum* in Italy.
Venturia circinans (Fr.) Sacc. On leaves of *G. molle*, *G. rotundifolium*, and *Geranium* sp. in Australia, Italy, France, and Germany.
ERARDIA. See Stenandrium.
ERBERA. PERDICIUM Ag. BARBERTON DAISY. Perennial herbs grown for their yellow or pink flower heads.
Aecidium crypticum Kalch. and Cke. Leaf rust on *G. lanuginosa* in India and the Union of South Africa.
Ascochyta gerberae Maffei. Circular spots, enlarging to occupy entire area of leaves of *G. jamesoni* in Italy.
Septoria gerberae Syd. Large purplish-black blotches on leaves of *G. jamesonii* and other species in the Union of South Africa. The leaves are often destroyed.
ESNERIA. Shrubs grown for their showy tubular flowers.
Coccoidia gesneraceae P. Henn. Circular black leaf spots on *Gesneria* sp. in Brazil.
Puccinia gesneriacearum Diet. Leaf rust on *Gesneria* sp. in Brazil.
Rostronitschkia nervincola (Rehm.) Fitzp. Black superficial rough fruiting bodies on yellow leaf spots on *G. alba* in Puerto Rico.
UM. AVENS. Herbs, sometimes cultivated for their yellow flowers or long plumy fruit.
Cercospora gei Fckl. On leaves of *G. rivale* in Austria.
Depazea geicola Fr. On leaves of *G. strictum* in Siberia.
Gloeosporium gei Trail. On stems of *G. urbanum* in Scotland.
Phragmidium circumvallatum P. Magn. Yellow rust sori on leaves of *G. heterocarpum* and *G. kokanicum* in Asia Minor, Turkestan, Algeria, Spain, and Russia.
Phyllosticta gei Thuem. On leaves of *G. urbanum* and *Geum* sp. in Siberia, Bohemia, Austria, and Germany.
Puccinia gei McAlp. Brown rust pustules on yellow-green sunken leaf spots on *G. renifolium* in Tasmania.
Ramularia gei (Elias.) V. Hoeh. Subangular ochraceous to gray-brown spots on leaves of *G. rivale* and *G. urbanum* in Europe. Reported from Missouri.
Ramularia trotteriana Sacc. Small subcircular gray leaf spots with dark purple margins on *G. montanum* and *G. urbanum* in Italy.

GIGANTOCHLOA. See Bambuseae.

GILIA. Annual, biennial, and perennial herbs.

Phytophthora parasitica Dastur. See Ricinus.

Puccinia patagonica Speg. Rust pustules on leaves, stems, and flowers of *G. gracilis* in Argentina and Chile.

Urocystis giliae Speg. Smut on roots of *G. foetida* in Argentina.

GINKGO. MAIDENHAIR TREE. Ornamental trees.

Phyllosticta ginkgo Brun. On leaves of *G. biloba* in France and Russia. Reported from the District of Columbia.

Phyllosticta salisburiae Tassi. Large irregular brown leaf spots on *G. biloba* in Italy.

GLADIOLUS. Summer and autumn flowering cormous plants.

Ascochyta gladioli Trav. and Spess. Dead areas at base of stems of *Gladiolus* sp. in Portugal.

Bacterium gladioli Sever. (*Pseudomonas gladioli* Sever.) This bacterium is reported from Italy and Holland as the cause of a soft rot of *Gladiolus* corms. The disease is first noted as a dying of the tops, beginning with the leaf tips, but soon involving the entire leaf which droops and finally falls over. *G. colvillei* is given as the host.

Mycosphaerella fusca Pass. On *Gladiolus* sp. in Italy.

Puccinia gladioli Cast. Produces brown, linear spots, limited by the veins, on both surfaces of leaves in which brown or black rust pustules appear. The host species are *G. aleppicus*, *G. byzantinus*, *G. communis*, *G. eckloni*, *G. illyricus*, *G. reuteri*, and *G. segetum*. The disease occurs in Italy, France, Spain, Portugal, Dalmatia, Algeria, and Asia Minor.

Uredo gladioli-buettneri Bub. Brown rust pustules on leaves of *G. buettneri* in Togo.

Uredo pulchra Syd. Rust pustules on leaves of *Gladiolus* sp. in the Himalaya Mountains of India.

Urocystis gladioli (Req.) Sm. This smut fungus attacks and destroys the corms of *Gladiolus* (*G. communis*, *G. imbricatus*, and *G. segetum*), a black spore mass forming within. It occurs in England, France, Holland, and Germany.

Uromyces gladioli P. Henn. Yellow, finally brown, rust pustules on both surfaces of leaves of *G. angustus*, *G. blandus*, *G. maculatus*, *G. orchidiflorus*, and *G. quartinianus* in the Union of South Africa.

Uromyces nyikensis Syd. Dark-brown to black rust pustules are produced on both surfaces of leaves of *G. nyikensis* on the Nyika Plateau, Africa. The rust greatly disfigures the leaves.

Uromyces transversalis Thuem. Round to elongate dead spots on both surfaces of the leaves in which appear brown to deep-brown or black rust pustules. The hosts are *G. psittacinus*, *G. saundersii*, *Tritonia* (*Montbretia*) *lineata*, *T. securigera*, and *T. squalida* in the Union of South Africa.

GLAUCIUM. HORN POPPY. Perennial herbs with large poppylike flowers and glaucous blue foliage.

Entyloma fuscum Schroet. Smut sori in gray-white, then brown, leaf spots on *G. flavum*, *G. luteum*, *Papaver somniferum*, and *Rhoeas* sp. in France, Hungary, and Germany. Also known from Maine and Iowa.

Entyloma glaucii Dang. Smut sori in subcircular leaf spots on *G. flavum* and *G. luteum* in France, Denmark, and Germany.

GLEDITSIA. HONEY LOCUST. Trees grown for their finely divided foliage and fragrant flowers.

Phyllosticta triacanthi Sacc. Irregular buff leaf spots with narrow brown margins on *G. triacanthos* in Italy.

GLIRICIDIA. Small, ornamental, leguminous trees.

Cercospora gliricidiae Syd. On leaves of *G. sepium* in the Philippines.

Colletotrichum gliricidiae Syd. Anthracnose on *G. sepium* in the Philippines.

Corticium salmonicolor B. and Br. See Citrus.

GLOBULARIA. GLOBE DAISY. Herbs and shrubs with small blue flowers in heads.

Phyllosticta globulariae West. Subcircular dull-brown leaf spots on *G. vulgaris* in Belgium.

Puccinia grisea (Strauss.) Wint. Rust sori in sunken brown leaf spots on *G. cordifolia*, *G. nudicaulis*, *G. vulgaris*, and *G. willkommii* in Europe.

Septoria globulariae Sacc. Subcircular gray-white leaf spots on *G. nudicaulis* and *G. vulgaris* in Italy.

GLOXINIA. Stemless cormous plants with showy bell-like flowers.

Aphelenchus olesistus Ritz. Bos. See Begonia.

GLYCERIA. PANICULARIA Ag. Perennial grasses, sometimes grown for ornament.

Entyloma spectabile Karst. Smut sori in elongate yellow to brown leaf spots on *G. spectabilis* in Finland.

Fusicladium hariotianum Sacc. On leaves of *G. borreri* in France.

Mycosphaerella recutita (Fr.) Johans. See Aira.

Physoderma gerhardti Schroet. Brown areas on leaves and sheaths of *G. aquatica*, *G. fluitans*, *Alopecurus pratensis*, and *Phalaris arundinacea* in Germany.

Puccinia glyceriae Ito. Powdery golden to brown rust pustules on leaves of *G. aquatica* and *G. tonglensis* in Japan.

Ustilago grammica B. and Br. See Aira.

GLYCINE. See Soja.

GLYCYRRHIZA. LICORICE. Perennial herbs with fleshy roots.

Cercospora cavarae Sacc. and D. Sacc. Brown indefinite leaf spots on *G. glabra* in Italy.

Phyllosticta glycyrrhizae Brun. Brown leaf spots on *G. glabra* in France.

Uromyces ellipticus Diet. and Neg. Brown rust pustules on leaves and stems of *G. astragalina* in Argentina and Chile.

GOETHEA. Evergreen shrubs.

Phyllosticta goetheae Magn. Irregular gray-white leaf spots with dull-brown borders on *G. cauliflora* (*G. strictiflora*) in Italy.

GOMESA. See *Orchidaceae*.

GOMPHOCARPUS. Perennial herbs or subshrubs.

Puccinia schlechteri P. Henn. Leaf rust on *G. schinzianus* in the Union of South Africa.

Septoria gomphocarpi P. Henn. Circular brown leaf spots on *G. fruticosus* in Italy and Australia.

GOMPHOLOBIUM. Australian shrubs.

Cronartium jacksoniae P. Henn. See Jacksonia.

GOMPHRENA. GLOBE AMARANTH. Erect or prostrate herbs.

Cercospora gomphrenicola Speg. Indefinite pale-yellow leaf spots on *G. glauca* in Argentina.

Phyllosticta gomphrenae Sacc. and Speg. Large indefinite yellow leaf spots with dull-brown margins on *G. globosa* in Italy.

Puccinia stuckertii Speg. Black rust pustules on leaves of *Gomphrena* sp. in Argentina.

Septoria gomphrenae Sacc. and D. Sacc. Subcircular to angular gray-white leaf spots with reddish margins on *G. globosa* in Italy.

Uromyces bonariensis Speg. Leaf rust on *G. elegans* and *G. gracilis* in Argentina.

GONGORA. See Orchidaceae.

GONOLOBUS. VINCETOXICUM Ag. Trailing or climbing herbs or shrubs.
Septoria gonolobicola P. Henn. Circular white leaf spots on *G. stephanotrichus* in Germany.
GOODENIA. Australian herbs and shrubs.
Puccinia saccardoi Ludw. Golden to black rust pustules on leaves of *G. albiflora, G. amplexans, G. geniculata, G. glauca, G. hederacea, G. ovata*, and *G. pinnatifida* in Australia.
Synchytrium succisae De B. and Wor. On leaf blades and petioles of *Goodenia* sp. and *Succisa pratensis* in Australia, Russia, Scandinavia, Bohemia, and Germany.
GOODIA. Australian shrubs with pea-like flowers.
Accidium solenliforme Berk. Leaf rust on *G. latifolia* in Australia.
GOODYERA. See Orchidaceae.
GOSSYPIUM. COTTON. Herbs and shrubs.
Alternaria macrospora Zimm. Leaf spot on *Gossypium* sp. in India.
Ascochyta gossypii Syd. On *Gossypium* sp. in Russia. Also reported from Arkansas.
Bacterial. A bacterial disease of bolls of *G. hirsutum*, said to be distinct from that caused by *B. malvacearum*, is reported from India. The disease is insect carried, black shiny spots appearing on the surface of the bolls where the punctures are made. Immature bolls when infected turn black and are shed. In all cases infected bolls, seed, and lint are discolored, and often a slimy soft rot is present.
Cercosporella gossypii Syd. On *Gossypium* sp. in Uganda and Brazil.
Club leaf (Cyrtosis). This disease, attacking cultivated *Gossypium* in China, is apparently one of the group of virus diseases. It produces a witches'-broom effect due to a shortening of the nodes and development of additional shoots. The leaves are small, crinkled, and often colored different shades of green, yellow, and red.
Doassansia gossypii Lagerh. Leaf smut of *Gossypium* sp. in Ecuador.
Fomes lamaoensis Murr. See Hevea.
Giberella gossypina Averna. Causes a boll rot of *Gossypium* sp. in Brazil.
Internal boll disease. The disease is characterized by a brown staining of the lint in green, unopened bolls and is due to the growth of a number of species of fungi which are transmitted by sucking insects. Young bolls when infected drop prematurely, and in older bolls the lint is more or less completely rotted. The disease is serious in the British West Indies and Trinidad. Similar diseases occur in Egypt and other cotton-growing countries, including probably the United States.
Kuehneola gossypii (Lagerh.) Arth. (*K. desmium* B. and Br.) Powdery cinnamon-brown rust pustules on purplish or brown leaf spots on *G. acuminatum, G. arboreum, G. brasiliense, G. herbaceum, G. hirsutum, G. mexicanum, G. microcarpum*, and *G. peruvianum* in Cuba, Porto Rico, South America, the Philippines, India, Java, Ceylon, India, Indo-China, New Guinea, west Africa, and Trinidad. Also known from Florida.
Ovulariopsis gossypii Wakef. White powdery mildew on yellow or red irregular patches on leaves of *G. barbadense* in Barbados.
Peronospora gossypina Averna. Downy mildew causing rot of bolls of *Gossypium* sp. in Brazil.
Pestalozzia gossypii Hori. Ochraceous to brown blotches on leaves of *G. herbaceum* in Japan.
Phoma roumii Fron. On stems and lateral branches of *Gossypium* sp. in Dahomey and west Africa, causing the leaves to wither.
Phyllosticta malkoffii Bub. Large brown to gray-white leaf spots with brown margins on *G. herbaceum* in Bulgaria.
Phytophthora sp. Causes a soft rot of bolls of *Gossypium* (cult.) in the British West Indies. Several species are involved, including *P. fabert.*
Rhizoctonia sp. See Vigna.
Sporidesmium longipedicellatum Reich. Causes a leaf spot of *Gossypium* (cult.) in Egypt.
Stilbum nanum Mass. f. **gossypina** Averna. Causes a boll rot of *Gossypium* sp. in Brazil.
GOUANIA. Tropical shrubs.
Puccinia gouaniae Holw. Brown leaf rust on *G. lupuloides* and *G. polygama* in Porto Rico, Cuba, Costa Rica, Trinidad, Panama, Guatemala, Santo Domingo, and Uganda.
Puccinia invaginata Arth. and Johnst. Leaf rust on *G. lupuloides* and *G. polygama* in Porto Rico, Cuba, Guatemala, St. Croix, Trinidad, and South America.
Puccinia paraënsis Diet. Cinnamon-brown rust pustules on leaves of *G. pyrifolia* in Brazil.
Uredo gouaniae Ell. and Kels. Leaf rust on *G. lupuloides* and *G. polygama* in St. Croix and Porto Rico.
Uromyces gouaniae Kern. Brown leaf rust on *G. lupuloides* in Guatemala.
GRABOWSKIA. Spiny tropical shrubs.
Puccinia paradoxopoda Speg. Dark-brown rust pustules on leaves of *G. obtusa* in Argentina.
Puccinia penningtonii Syd. Black leaf rust on *G. duplicata* in Argentina.
GRAPTOPHYLLUM. Tropical shrubs with variegated foliage.
Rosellinia bunodes B. and Br. See Citrus.
GRATIOLA. Low herbs.
Phyllosticta gratiolae Höll. Ochraceous leaf spots on *G. officinalis* in Hungary and Russia.
Septoria gratiolae Sacc. and Speg. Dull-brown leaf spots on *G. officinalis* in Italy.
GREVILLEA. SILK OAK. Timber and ornamental trees.
Dimerium orbiculatum McAlp. Numerous circular, then confluent, brown to black leaf spots on *G. victori* in Australia.
Diplodia cacaoicola P. Henn. See Theobroma.
Fomes lamaoensis Murr. See Hevea.
Fusarium udum Butl. See Dianthus.
Phyllachora grevilleae (Lév.) Sacc. Circular black stromata on leaves of *G. buxifolia* and *G. occidentalis* in Australia.
Rhizoctonia lamellifera Small. Infected trees show a browning and wilting of the foliage followed by a stag-headed condition and ultimate death. Blackened areas occur on the lower portions of the trunks from which there are resinous or gummy exudates. Diseased tissues are brown and filled with gum. The roots rot and may be partly covered with thin superficial fungus layers. Numerous small black sclerotia occur in the rotted wood, cortex, and bark, together with sheets of black, irregular fungus tissue. The disease attacks *G. robusta* in Uganda as well as *Casuarina equisetifolia, Bixa orellana, Coffea robusta*, and *Thea* to a lesser extent.
Rosellinia arcuata Petch. See Thea.
GREWIA. Shrubs.
Accidium warneckeanum P. Henn. Galls up to 20 centimeters long deforming branches of *G. carpinifolia* in Tanganyika.
Helminthosporium grewiae P. Henn. On leaves of *Grewia* sp. in the Congo.
Ravenelia atrides Syd. Yellow to black rust pustules on leaves of *G. caffra* and *G. occidentalis* in the Union of South Africa.
Rhytisma grewiae Kalchbr. Black applanate stromata on leaves of *G. occidentalis* in the Union of South Africa.

GREWIA—Continued.
Stigmatea grewiae P. Henn. Circular brown leaf spots on *G. caffra* in the Union of South Africa.
Uredo grewiae Pat. and Har. Leaf rust on *G. ferruginea* in Senegal.
Ustilago grewiae (Pass.) P. Henn. Smut sori in branches of *G. columnaris*, *G. microcarpa*, and *G. mollis* in Abyssinia, tropical Africa, and Ceylon.
GRIFFITHIA. Rubiaceous shrubs.
Endophyllum griffithiae (P. Henn.) Racib. Leaf rust on *G. fragrans*, *G. latifolia*, and *Randia scandens* in Java.
GRISELINIA. Shrubs with large, glossy laurel-like foliage.
Puccinia griseliniae Pazschke. Dark-brown rust pustules on small circular sunken leaf spots on *G. ruscifolia* in Brazil.
GROSSULARIA. GOOSEBERRY. See Ribes.
GUAZUMA. Tropical trees.
Trabutia guazumae Chardon. (*Phyllachora guazumae* P. Henn.) Black circular stromata on leaves of *G. ulmifolia* in Brazil and Porto Rico.
GUETTARDA. Tropical and subtropical shrubs.
Septoria guettardae Garman. Large irregular dark-red leaf spots with white centers on *G. ovalifolia* in Porto Rico.
GUNNERA. Perennial herbs with large leaves used for ornamental effects.
Ovularia gunnerae Speg. Circular to angular purplish leaf spots on *G. chilensis* in Chile.
Phyllosticta gunnerae Speg. On leaves of *G. magellanica* in Patagonia.
GUZMANIA. Tropical American bromeliads.
Lembosia bromeliacearum Rehm. On leaves of *G. roezlii* in Brazil.
GYMNADENIA. See Orchidaceae.
GYMNOLOMIA. Yellow-flowered herbs or shrubs.
Aecidium gymnolomiae Mayor. Leaf rust on *G. quitensis* in Colombia.
Puccinia gymnolomiae Arth. Powdery brown leaf rust on *G. brachypoda*, *G. patens*, *G. subflexuosa*, and *Hymenostephium microcephalum* in Mexico, Guatemala, and Costa Rica.
Puccinia semota Jack. and Holw. Dark-brown leaf rust on *G. subflexuosa* in Guatemala.
GYMNOSPORIA. Shrubs and small trees, often spiny.
Englerulaster gymnosporiae (P. Henn.) Th. On leaves of *Gymnosporia* sp. in the Union of South Africa.
Septoria gymnosporiae Syd. Small dark-brown leaf spots on *G. defleza* in the Union of South Africa.
GYMNOSTACHYUM. White-flowered herbs from Ceylon.
Puccinia leochroma Syd. Leaf rust on *G. subcordatum* in the Philippines.
GYNERIUM. PAMPAS GRASS. Perennial grass.
Ustilago quitensis Lagh. Powdery dark olivaceous smut sori destroying panicles of *Cortaderia argentea* (*G. argenteum*) in Ecuador.
GYNURA. Tropical herbs with showy foliage.
Aecidium gynurae Petch. Leaf rust on *G. lycopersicifolia* in Ceylon.
Uredo gynurae Petch. Leaf rust on *G. lycopersicifolia* in Ceylon.
GYPSOPHILA. BABY'S BREATH. Herbs with a profusion of small flowers used in borders.
Mycosphaerella gypsophilae Fckl. On leaves and stems of *G. gmelini*, *G. muralis*, and *G. scleranthus* in Siberia and Germany.
Septoria lychnidis Lasch. See Lychnis.
Uromyces gypsophilae Cke. Black powdery rust pustules on leaves and stems of *G. anatolica*, *G. haussknechtii*, *G. paniculata*, *G. polyclada*, *G. pulchra*, and *Saponaria vaccaria* in Persia, Kurdistan, and Russia.
HABENARIA. Terrestrial leafy orchids. See Orchidaceae.
HABRANTHUS. Showy bulbous plants. Generally included with *Hippeastrum*.
Puccinia habranthi Diet. and Neg. Rust sori, round to irregular, yellow, becoming dark-brown or black in circular spots with purple margins. On both surfaces of leaves of *H. andicola* in Chile.
Puccinia reichei Diet. and Neg. Yellow to brown rust pustules on both surfaces of leaves of *H. chilensis* in Chile.
HAEMODORUM. Perennial Australian herbs.
Puccinia haemodori P. Henn. Black rust pustules on leaves of *Haemodorum* sp. in Australia.
HAEMANTHUS. BLOOD LILY. African bulbous plants.
Cercospora haemanthi Kalch. Large, elliptical brown spots on leaves of *H. puniceus* in the Union of South Africa.
HAKEA. Australian ornamental evergreen shrubs.
Phyllachora hakeae P. Henn. Black stromata on both leaf surfaces of *H. myrtoides* in Australia.
Uredo angiosperma Thuem. Powdery brown rust pustules on leaves of *Hakea* sp. in Australia.
HALLERIA. Shrubs or small trees.
Septoria halleriae P. Henn. Pale, effuse, zoned leaf spots on *H. lucida* in Italy and Germany.
Septoria hallericola Sacc. and D. Sacc. On leaves of *H. lucida* in Portugal.
HAMMAMELIS. WITCH-HAZEL. Ornamental woody plants with yellow flowers late in fall or in the winter.
Aecidium hammamelidis P. Magn. Rust pustules on purplish leaf spots on *H. japonica* in Japan.
HAMELIA. Tropical ornamental woody plants grown for their flowers and berries.
Uredo hameliae Arth. Numerous light-brown powdery rust pustules on lower leaf surfaces of *H. erecta* in Porto Rico and Costa Rica.
HARDENBERGIA. Vines grown for their handsome flowers. See also Kennedia.
Phyllosticta hardenbergiae Cke. and Mass. Irregular dull-brown leaf spots on *Hardenbergia* sp. in Australia.
Septoria hardenbergiae Sacc. Pale leaf spots with dull-brown margins on *Kennedia monophylla* (*H. monophylla*) in Australia.
Uromyces hardenbergiae McAlp. Brown rust pustules on lower leaf surfaces of *H. monophylla* in Australia.
HEDERA. IVY. Ornamental woody vines, grown for their handsome persisting foliage.
Ascochyta diplodina Berl. and Bres. Pale, irregular, confluent leaf spots on *H. colchica* and *H. helix* in Russia.
Bacillus sp. A bacterial disease on *H. helix* in France, producing brown patches on the leaves and killing back the young growth.
Bacterium hederae Arn. Transparent leaf spots on *H. helix* in France.
Colletotrichum hedericola Laubert. Anthracnose on leaves of *H. helix* in Austria.
Leptosphaeria hedericola (Desm.) Sacc. On leaves of *H. helix* in France.
Leptosphaeria helicicola (Desm.) Niessl. On leaves of *Hedera* sp. in France.
Macrophoma cylindrospora (Desm.) Berl. and Vogl. On leaf blades and petioles of *Euonymous japonicus*, *Hedera helix*, *Quercus ilex*, and *Vinca* sp. in France, Belgium, Italy, Austria, and Germany.

HEDERA—Continued.
Macrophoma ulcinjensis Bub. Large yellow to dull-gray leaf spots on *H. helix* in Yugoslavia.
Meliola dichotoma B. and C. Black superficial fungus patches on leaves of *Hedera* sp. in Japan.
Meliola kusanoi P. Henn. Circular black fungus patches on leaves of *Hedera* sp. in Japan.
Mycosphaerella hederae-helicis Siem. On leaves of *H. helix* in Russia.
Mycosphaerella hedericola (Desm.) Lind. Subcircular to irregular brown leaf spots on *H. colchica* and *H. helix* in Italy, Yugoslavia, Russia, Great Britain, Denmark, and France.
Phyllosticta belgradensis Bub. and Ranoj. Irregular, often marginal, gray to ashen leaf spots with brown margins on *H. helix* in Yugoslavia and Spain.
Phyllosticta destructiva-hederae Desm. On leaves of *Hedera* sp. in France.
Phyllosticta hederacea (Arc.) Allesch. On leaves of *H. helix* in Germany.
Phyllosticta hederae Sacc. and Roum. On leaves of *H. helix* in Europe.
Phyllosticta hedericola Dur. and Mont. Subcircular whitish leaf spots with brown margins on leaves of *H. colchica* and *H. helix* in Algeria and Europe. Reported from New Jersey.
Phyllosticta milenae Bub. Large irregular gray to dull-yellow leaf spots on *H. helix* in Bulgaria and Yugoslavia.
Phyllosticta ulcinjensis Bub. Large yellowish-white to greenish leaf spots with narrow brown margins on *H. helix* in Yugoslavia.
Septoria desmazierii Sacc. On leaves of *H. helix* in France.
Septoria hederae Desm. On leaves of *H. colchica* and *H. helix* in Europe.
Septoria insularis B. A. Br. Large brown leaf spots on *H. helix* in Germany.
Septoria mortolensis Penz. and Sacc. See Acacia.
Triphragmium thwaitesii Berk. and Br. See Acanthopanax.

HEDYCHIUM. GINGER LILY. Rhizomatous herbs allied to *Zingiber*.
Taphrina maculans Butl. See Curcuma.

HEDYSARUM. Herbaceous perennials.
Anthostomella suliae Montem. On leaves of *H. coronarium* in Italy.
Cercospora ariminensis Cav. Circular to ovate or elliptical dull chestnut-brown leaf spots on *H. coronarium* in Italy and Brazil.
Erysiphe taurica Lév. See Althaea.
Placosphaeria onobrychidis Sacc. See Lupinus.
Ustilago kusanoi Syd. Smut on *H. esculentum* in Japan.

HELIANTHEMUM. SUN ROSE. Ornamental woody or herbaceous plants grown for their showy flowers.
Cercospora cistinearum Sacc. Subcircular gray leaf spots with red-purple margins on *H. vulgare* in Italy.
Cercospora helianthemi Cav. Small circular gray-brown leaf spots on *H. polifolium* in Italy.
Erysiphe taurica Lév. See Althaea.
Peronospora alpestris Gäum. Downy mildew on leaves of *H. alpestre* and *H. niloticum* in Algeria and Switzerland.
Peronospora leptoclada Sacc. Dirty-white areas on lower leaf surfaces of *H. guttatum* and *H. vulgare* in France, Italy, and Switzerland.
Phyllosticta helianthemi Roum. and var. **major** P. Brun. Subcircular white leaf spots on *H. vulgare* in France.
Phyllosticta helianthemicola Allesch. and var. **marginatum** Syd. Irregular dull-yellow to gray indefinite leaf spots on *H. vulgare* in Great Britain and Germany.
Septoria chamaecistl Vestergr. Brown, then dirty-white, leaf spots with dull-brown borders on *H. chamaecistum* and *H. vulgare* in Sweden.
Septoria helianthemi Gz. Frag. On leaves of *H. montanum* in Spain.
Uredo helianthemi Rbh. Yellow to brown rust pustules on leaves of *Cistus* sp. and *Helianthemum guttatum* in Italy.

HELIANTHUS. SUNFLOWER. JERUSALEM ARTICHOKE. Hardy herbaceous annuals and perennials.
Mycosphaerella compositarum (Auersw.) Schroet. On leaves of *H. annuus* in Yugoslavia.
Puccinia minuscula Arth. Brown leaf rust on *H. hypargyreus* in Ecuador.

HELICHRYSUM. EVERLASTING. Shrubs or herbs, some species grown for their flowers.
Entyloma aschersonii (Ule.) Wor. A smut producing swellings on the stems and roots and causing young shoots to die-back, of *Gnaphalium* sp. and *Helichrysum arenarium* in Germany.
Puccinia kalchbrenneri Det. Yellow to brown rust pustules on leaves of *H. globosum*, *H. nudatum*, *H. nudifolium*, and *H. undulatum* in Australia and south and central Africa.
Puccinia mac-owani Wint. Yellow to fuscous rust pustules on leaves of *H. petiolatum* and *Helichrysum* sp. in the Union of South Africa.
Septoria helichrysi Syd. Irregular, then confluent, brown leaf spots on *Helichrysum* sp. in the Union of South Africa.
Uromyces helichrysi Lagh. Dark-brown rust pustules in sunken purple spots on leaves and stems of *H. stoechas* in France.

HELICONIA. BIHAI Ag. A foliage plant allied to *Musa*.
Pyrenobotrys heliconiae (P. Henn.) Theiss. and Syd. Black stromata on brown to black irregular leaf spots on *Heliconia* sp. in Brazil.
Puccinia heliconiae (Diet.) Arth. Brown powdery rust pustules on leaves of *H. borinquena*, *H. latispatha*, *H. psittacorum*, and *Heliconia* sp. in Porto Rico, Martinique, Brazil, Panama, and Trinidad.

HELIOPSIS. Hardy herbaceous plants cultivated for their profuse yellow flowers.
Aecidium heliopsidis Mayor. Rust on leaves of *H. buphthalmoides* in Colombia.
Puccinia bimbergi Mayor. Rust on leaves of *H. buphthalmoides* in Colombia.

HELIOTROPIUM. HELIOTROPE. Herbaceous perennials cultivated for their fragrant flowers.
Aecidium caspicum Jacz. Rust pustules on large circular yellow to purplish leaf spots on *H. europaeum* in Russia.
Aecidium guatemalense Kern. and Kellerm. Rust pustules on discolored areas on leaves of *H. indicum* in Guatemala.
Cercospora heliotropii-bocconii Scalia. Subcircular, then confluent and irregular, dirty-yellow to gray leaf spots on *H. bocconi* in Sicily.
Cercospora taurica Tranzsch. Large gray leaf spots on *H. europaeum* in Russia and Yugoslavia.
Puccinia gilva Arth. and Holw. Leaf rust on *H. physocalycium* in Guatemala.
Puccinia heliotropii Kern. and Kellerm. Powdery chestnut-brown rust pustules on leaves of *H. indicum* in Guatemala.
Puccinia heliotropicola Speg. Powdery dull-brown rust pustules on leaves of *H. campestris* in Argentina.
Uromyces heliotropii Sred. Cinnamon to chestnut-brown rust pustules on leaves of *H. europaeum* in Russia, France, and Bulgaria.

HELLEBORUS. HELLEBORE. Christmas rose. Hardy herbaceous perennials cultivated for their flowers and attractive leaves.

Aecidium hellebori Ed. Fisch. Rust on leaves of *H. viridis* in Spain and Switzerland.

Ascochyta hellebori Sacc. Angular whitish leaf spots with dark borders on *H. viridis* in Italy.

Coniothyrium hellebori Cke. and Mass. Large irregular brown leaf spots without definite margins on *H. corsicus*, *H. foetidus*, *H. niger*, *H. olympicus*, and *H. viridis* in Great Britain, France, Corsica, Italy, Switzerland, Denmark, Albania, Yugoslavia, Austria, and Germany. Reported from Oregon.

Peronospora pulveracea Fckl. Gray mold on leaves of *H. foetidus*, *H. niger*, *H. odorus*, and *H. viridis* in Yugoslavia, France, Switzerland, Denmark, Austria, and Germany.

Phyllosticta atro-zonata Voss. Circular ashen-colored leaf spots with black centers on *H. altifolius* and *H. viridis* in Austria.

Phyllosticta helleboriana Brun. Small circular gray leaf spots with brown margins on *H. foetidus* in France.

Phyllosticta helleborella Sacc. (*Mycosphaerella hermione* Sacc.) Large, black, then lighter, angular to irregular blotches without distinct margins on upper surfaces of leaves of *H. foetidus*, *H. niger*, and *H. viridis* in Great Britain, Italy, and Austria.

Phyllosticta helleboricola C. Mass. Pale angular leaf spots on *H. odorus* and *H. viridis* in Spain, Italy, and Bulgaria.

Phyllostictiella olympica (Allesch.) Tass. On leaves of *H. olympicus* in Germany.

Ramularia hellebori Fckl. Small circular whitish spots with black or purple margins on bracts and floral organs of *H. foetidus* and *H. viridis* throughout Europe.

Ramularia recognita Massal. On leaves of *H. multifidus* and *H. viridis* in Spain and Austria.

Ramularia nigricans (Mass.) Ferr. On leaves of *H. foetidus* in Spain.

HELYGIA. See Parsonsia.

HEMEROCALLIS. DAY LILY. Yellow and orange flowered, stout-rooted perennials with basal leaves.

Colletotrichum liliacearum Fen. Anthracnose on leaves of *H. fulva* in Italy.

Mycosphaerella hemerocallidis (Pass.) Lind. On leaves of *H. fulva* in Yugoslavia.

Puccinia hemerocallidis Thuem. Pale-yellow rust pustules, becoming darker, on sunken yellow leaf spots on *H. aurantiaca*, *H. dumortieri*, *H. lilio-asphodelus*, (*H. flava*), *H. fulva*, and *H. middendorfii* in Siberia and Japan.

Sporotrichum ochraceum (Cda.) Sacc. On stems of *Hemerocallis* sp. and *Allium* sp. in Bohemia.

HEMIGRAPHIS. Diffuse or prostrate herbs grown for their foliage and flowers.

Uromyces macintirianus Barcl. Black rust pustules on leaves of *H. latebrosa* in India.

HEPATICA. Stemless low perennials.

Aphelenchus olesistus Ritz. Bos. See Begonia.

Ascochyta molleriana Wint. On leaves of *H. nobilis* (*H. triloba*) in Hungary.

Ascochyta vodakii Bub. On leaves of *H. nobilis* in Bohemia.

Phyllosticta hepaticae Brun. Leaf spots on *H. triloba* in France.

Septoria hepaticae Desm. Brown to black circular to irregular, then confluent, leaf spots on *H. triloba* in Belgium, France, Denmark, Russia, Switzerland, Italy, Spain, Austria, and Germany.

HERACLEUM. Cow PARSNIP. Perennial or biennial herbs.

Ascochyta heraclei Bres. Deep-brown, circular, often confluent, leaf spots on *H. sibiricum* and *H. spondylium* in Bulgaria and Germany.

Mycosphaerella caulicola (Karst.) Lind. On stems of *Chamaenerium angustifolium*, *Heracleum spondylium*, and *Telekia speciosa* in Yugoslavia, Denmark, and Finland.

Protomyces macrosporus Unger. See Coriandrum.

Puccinia corteyi Ranoj. Leaf rust on *H. minimum* in Europe.

Puccinia heraclei Grev. Chestnut-brown to deep-brown rust pustules on leaf blades and petioles of *H. minimum*, *H. sibiricum*, and *H. spondylium* in Europe.

Septoria heracleicola Kab. and Bub. Small circular brown leaf spots, becoming whitish, on *H. sibiricum* in Italy and Austria.

Septoria heraclei-palmati R. Maire. Yellow, then brown, confluent leaf spots on *H. palmatum* in France.

Taphridium umbelliferarum (Rostr.) Lagerh. and Juel. Irregular gray leaf spots on leaves of *H. montanum*, *H. sibiricum*, *H. spondylium*, *Oreoselinum* sp., and *Peucedanum palustris* in Europe.

HERMANNIA. Shrubs.

Septoria hermanniae F. Tassi. Brown marginal leaf spots on *H. micans* in Italy.

HERNIARIA. BURSTWORT. Trailing small-leafed herbs.

Peronospora herniariae De By. Downy mildew on leaves and stems of *H. glabra* and *H. hirsuta* in Sweden, France, Russia, and Germany.

Puccinia herniariae Unger. Powdery red-brown to dark-brown rust pustules on leaves and stems of *H. glabra*, *H. hirsuta*, *H. lenticulata*, and *H. odorata* in Europe.

Puccinia montagnei Diet. Dark-brown rust pustules on leaves of *H. glabra*, *H. latifolia*, and *H. maritima* in France and Portugal.

HERPESTIS. Herbs, sometimes cultivated.

Albugo quadrata Kalch. and Cke. Small white sori (spore masses) on leaves of *H. verticillaris* in the Union of South Africa.

HESPERETHUSA. Naibel. Spiny trees or shrubs related to Citrus.

Bacterium citri Hasse. See Citrus.

HESPERIS. Dames rocket. Biennial herbs.

Phyllosticta hesperidiarum (Catt.) Pez. Circular to irregular brown, then dull-brown or ashen, leaf spots on *H. matronalis* in Italy.

Ramularia matronalis Sacc. On leaves of *H. matronalis* in France.

HETEROPAPPUS. Hardy herbaceous perennials with blue aster-like flowers.

Uredo heteropappi P. Henn. Brown rust pustules on circular dull-brown leaf spots on *H. hispidus* in Japan.

HEUCHERA. ALUMROOT. Herbaceous perennials.

Aphelenchus olesistus Ritz. Bos. See Begonia.

Phyllosticta heucherae P. Brun. Circular to irregular gray leaf spots on *H. glabra* and *H. sanguinea* in France and Great Britain.

HEVEA. PARA RUBBER TREE. Tropical trees furnishing rubber. This account of the diseases of *Hevea brasiliensis* is drawn for the most part from "The Diseases and Pests of the Rubber Tree," by T. Petch, of Ceylon.

Aposphaeria ulei P. Henn. Yellow to dark-brown, circular or confluent, leaf spots on *Hevea* sp. in Peru.

Ascochyta heveae Petch. Marginal white or brownish-white leaf spots with red-brown borders on *H. brasiliensis* in Ceylon.

Catacauma huberi (P. Henn.) Theiss. and Syd. Tar-spot disease, characterized by shining black crusts up to 1 centimeter in diameter on the lower leaf surfaces, with corresponding pale-green patches above. On *H. brasiliensis* in Brazil.

VEA—Continued.

Cercospora heveae Vinc. Leaf spot on *H. brasiliensis* in Brazil.

Colletotrichum heveae Petch. Irregular spots to large patches, dry, gray brown, with purple-brown margins on old leaves of *H. brasiliensis* in Ceylon and Brazil. Diseased areas often fall out, producing a shot-hole effect.

Coniothyrium sp. Produces a canker on *H. brasiliensis* in Uganda.

Corticium koleroga (Cke.) V. Hoehn. See Coffea.

Corticium salmonicolor B. and Br. See Citrus.

Diplodia cacaoicola P. Henn. See Theobroma.

Dothidella ulei P. Henn. (*Melanopsammopsis heveae* Stahel.) (*Fusicladium macrosporium* Kuyper.). This disease, the so-called South American leaf disease, is the most serious rubber disease in the Western Hemisphere. It has made rubber culture unprofitable in Surinam and has caused heavy losses in British Guiana, Trinidad, Brazil, and Peru. Other species of *Hevea* (*H. confusa* and *H. guyanensis*) are attacked, in addition to *H. brasiliensis*.

The disease attacks the young leaves within a few days after their unfolding, causing translucent olive-green to blackish-green spots, which may be so numerous that the leaves blacken and shrivel. Young trees are particularly susceptible, the disease destroying the tops. In some cases the diseased areas dry up and fall out, producing a shot-hole effect. This type of injury is most prevalent in old trees. Petioles and young green twigs are also attacked, swollen areas resulting, which later on crack and form cankers. The fungus produces a velvety mycelial layer on the diseased areas. Other stages develop on old leaves. No method of controlling this disease has yet been found.

Fomes lamaoensis Murr. (*Hymenochaete noxia* Berk.). The brown root disease is the most widely spread root disease of economic plants in the eastern tropics. The principal hosts are *Albizzia stipulata*, *Annona muricata*, *Artocarpus communis*, *A. integrifolia*, *Brownea grandiceps*, *Brunfelsia Americana*, *Castilla elastica*, *Cedrela odorata*, *Cinnamomum camphora*, *C. cassia*, *C. iners*, *C. zeylanicum*, *Codiaeum variegatum*, *Coffea arabica*, *C. robusta*, *C. stenophylla*, *Cocos nucifera*, *Dalbergia latifolia*, *Eriobotrya japonica*, *Erythrina* sp., *Erythroxylon coca*, *Ficus glomerata*, *F. infectoria*, *Funtumia elastica*, *Garuga pinnata*, *Gossypium* spp., *Grevillea robusta*, *Hevea brasiliensis*, *Hura crepitans*, *Jacaranda mimosaefolia*, *Manihot* spp., *Myristica magnifica*, *Persea gratissima*, *Poinciana regia*, *Soymida febrifuga*, *Spondias wightii*, *Terminalia belerica*, *Thea* (cult.), *Theobroma cacao*, and *Thespesia populnea* in India, Ceylon, Java, Sumatra, Malaya, Samao, New Guinea, east and west Africa, British Guiana, and possibly Brazil.

The disease makes slow progress, one tree dying at a time. The roots of diseased trees are incrusted with a mass of sand, earth, and stones, intermingled with and held together by brown mycelium. The mycelium later becomes black. The bark beneath is brown, or brown mottled with white patches. The wood may be soft and friable, with a network of fine brown lines composed of hyphae, or the rot may be comparatively hard and transversed by rather broad brown bands. In advanced stages the wood is honeycombed. The hard, purple-brown sporophore rarely develops. The minute velvety, sterile brown patches sometimes found ringing the stems of diseased plants at the crown have caused the fungus to be determined as *Hymenochaete noxia*, a conclusion shown by Petch to be erroneous.

Fomes lignosus Klotzsch. This fungus causes the most serious losses and is the most widely distributed of all the root diseases of rubber. It occurs in India, Ceylon, Java, Sumatra, Borneo, west Africa, the Congo, and Brazil, attacking in addition to *H. brasiliensis*, *Afzelia palembanica*, *Artocarpus integrifolia*, *Berrya ammonilla*, *Bombax malabaricum*, *Cinnamomum camphora*, *Cocos nucifera*, *Coffea liberica*, *C. robusta*, *Dendrocalamus giganteus*, *Derris dalbergioides*, *Erythrina umbrosa*, *Ficus* spp., *Livistona cochin-chinensis*, *Koompassia malaccensis*, *Manihot glaziovii*, *M. utilissima*, *Oncosperma filamentosa*, *Shorea* sp., *Thea* (cult.), *Theobroma cacao*, and many other woody plants.

The fungus spreads from dead roots and old stumps to the living roots of the various hosts, either where they come in contact or by growing out through the soil. As a rule, smooth white, or yellowish-white to reddish rhizomorphs are produced on the exterior of diseased roots. These run longitudinally along the roots, uniting here and there to form a network. The younger growing parts of the fungus consist of a fan-shaped mycelium. The fungus penetrates both bark and wood, causing a soft friable rot, without distinguishing characteristics. Occasionally the fungus develops internally only, producing a soft watery decay without external rhizomorphs. The fruiting body is red brown above with a bright-yellow margin and bright-orange lower surface. The colors become duller with age.

Fomes pseudo-ferreus Wakef. (*Poria hypolateritia* Berk.). This fungus produces a wet rot of roots of *H. brasiliensis*, *Albizzia* sp., *Symplocos spicata*, *Tephrosia* sp., *Thea* (cult.), and *Theobroma cacao* in Malaya, Ceylon, and Java. A dark-red superficial mycelium is sometimes formed over diseased roots, or occasionally snow-white patches of mycelium on small roots, but no rhizomorphs are produced. Workers in Java refer this species to *Fomes* (*Ganoderma*) *ferreus* Berk.

Fusicladium sp. A die-back disease, starting on pruned branches, has been reported from Java on *H. brasiliensis*, but is considered by Petch identical with the disease caused by *Diplodia*.

Gloeosporium alborubrum Petch. This fungus is one of the causes of abnormal leaf fall of *H. brasiliensis* in Ceylon, Sumatra, Malaya, and Uganda. On young leaves large, irregular, blackish-green, watery-looking patches occur. Older leaves turn yellow, then brown, black spots with gray centers appearing on veins and midribs. Petioles turn dark brown or black and the leaves fall. Young twigs may also be affected, dying back. Diseased fruit rot and finally become greenish gray and wrinkled.

Gloeosporium heveae Petch. This anthracnose fungus attacks young plants of *H. brasiliensis* in the nurseries of Ceylon and Brazil. The leaves turn yellow green, then yellow, and fall. The fruiting pustules appear on both leaf surfaces.

Guignardia heveae Syd. Tips and margins of leaves become pale brown with purple-brown margins. On *H. brasiliensis* in Ceylon, Malaya, and the Philippines.

Helicobasidium mompa Tan. See Morus.

Helminthosporium heveae Petch. The "bird's-eye spot" disease of *H. brasiliensis* attacks for the most part small plants in the nurseries, but is occasionally found on older trees. The spots are at first purple and very small, then increasing in size and becoming white and semitransparent, with narrow purple-brown borders. The disease occurs in Ceylon, India, Malaya, Java, Sumatra, the Philippines, and Gold Coast.

Hymenochaete noxia Berk. See Fomes lamaoensis Murr.

Marasmius spp. See Theobroma.

Meliola heveae Vinc. Small black superficial fungus patches on leaves of *H. brasiliensis* in Brazil.

Mycosphaerella heveae Petch. Small yellow leaf spots on *H. brasiliensis* in Ceylon, which become [illegible] brown in color and confluent.

Ophiobolus heveae P. Henn. Circular to effuse and confluent gray leaf spots on *Hevea* sp. in [illegible].

Phacophomopsis heveae Grove. Causes a bark disease of *H. brasiliensis* in Uganda.

HEVEA—Continued.

Phyllosticta heveae Zimm. Marginal or apical brown patches on leaves of *H. brasiliensis* in Java, Trinidad, Brazil, and Malaya. Found on young trees in shaded nurseries.

Phyllosticta ramicola Petch. This fungus attacks young twigs from 6 to 18 inches back from the tip. Diseased areas are dark brown, progressing up and down from the point of infection. On *H. brasiliensis* in Ceylon, Java, and Malaya.

Phytophthora faberi Maubl. This fungus attacks practically all parts of the rubber tree, causing the diseases known as "abnormal leaf fall," pod or fruit disease, die-back of shoots, and "claret-colored canker" or "patch canker." These diseases are prevalent in India, Ceylon, Java, Malaya, Fiji, and other rubber-growing countries.

Diseased fruits are first watery green, then black and soft. They remain hanging on the tree. The fungus passes from the fruit to the leaves and twigs, causing an abnormal leaf fall and dying back of young twigs. The leaves may first turn yellow or mottled, or they may fall while still green. The leaflets often separate from the petioles. In the case of the trunk canker no external symptoms are in evidence other than a slight exudation of a rusty-colored liquid. The layer beneath the outer brown bark is black, and the cortex is first yellow gray, then claret colored. The cankered areas are surrounded by black lines. The disease may spread around the trunk and so destroy the tree. See also Theobroma for additional hosts and geographical distribution.

Phytophthora meadii McRae. This species causes fruit rot, leaf fall, and black-thread or black-stripe disease. The fruit rot and leaf fall caused by this fungus bring about heavy reductions in latex yield, which is not the case with the preceding species. The symptoms are similar, however. The black-thread phase of this *Phytophthora* disease occurs on the tapped surface, beginning as a series of narrow, vertical, parallel black lines, which may broaden out and coalesce so as to form a continuous wound parallel to the tapping cut. These black lines may extend through to the wood. In addition to *H. brasiliensis*, *Theobroma cacao* is attacked by this species. It is reported from Ceylon, India, Java, and Malaya.

Poria hypobrunnea Petch. A root disease of *H. brasiliensis*, *Crotalaria fulva*, *Hibiscus* sp., *Panax* sp., *Tephrosia candida*, and *Thea* (cult.) in Ceylon and Java. The mycelium forms stout red strands on the exterior of the root, which may unite into a continuous red sheet. These rhizomorphs are smooth and tough, bright red to brownish red, white within, turning black with age. Diseased wood is soft, friable, and permeated with red mycelial sheets, which often follow the lines of the annual rings. In advanced cases a soft wet rot is present, with a network of white threads between the bark and wood. The fruiting body is first yellowish white or ochraceous, then red brown, and finally dark-slate color.

Rosellinia bunodes B. and Br. See Citrus.

Sclerotium sp. Destroys bark on tapped surfaces of *H. brasiliensis* in Sumatra.

Scolecotrichum heveae Vinc. Small brown spots, the centers of which drop out on *H. brasiliensis* in Brazil.

Sphaeronema sp. Attacks the tapped surface of trunks of *H. brasiliensis* in Malaya, rotting and destroying the exposed cortex tissues and making further tapping for some years impossible.

Sphaerostilbe repens B. and Br. Black or red flattened fungous strands or rhizomorphs occur under the cortex of diseased roots and the wood is stained deep blue or purple. There is often a foul smell connected with the disease. Infected plants gradually die. Fruiting bodies of the fungus are of two types, the conidial occurring as short, erect, red, hairy stalks 2 to 8 millimeters high, surmounted by a pink head of conidia. The second consists of small, dark-red perithecia at the base of the conidial stalks. In addition to *H. brasiliensis* the disease attacks *Artocarpus integrifolia*, *Carica papaya*, *Casuarina equisetifolia*, *Citrus* spp., *Erythrina* spp., *Hibiscus* sp., *Mangifera indica*, *Maranta arundinacea*, and *Thea sinensis* in Ceylon, India, Malaya, Uganda, Fiji, Gold Coast, and the British West Indies.

Thread blight. A number of species of "thread blights" have been reported from India, Ceylon, Malaya, Java, and other tropical countries on *H. brasiliensis* and other hosts, some at least of which are parasitic. They are all characterized by white strands of mycelium, which run over stems and leaves of the hosts. This type of disease is described in detail for *Coffea*. (See Corticium koleroga.)

Top canker. This disease of *H. brasiliensis* in Ceylon is thought to be due to *Phytophthora faberi* and attacks the upper branches and stems. The bark splits longitudinally in lines a foot or more long, forming long, narrow scales which in time split transversely. The disease may penetrate to the wood, causing an open wound. The stems ultimately become thickened in the region of the cankers.

Venturia emergens Petch. On branches of *H. brasiliensis* in Ceylon.

White stem blight. This disease occurs in Ceylon on *H. brasiliensis* and *Thea* (cult.) and is caused by an undetermined fungus. The larger branches are attacked, white patches often 6 feet in length appearing on the bark. A fine white thread runs along the whitened patch, and the upper margin of the patch may show a fringe of hyphae.

Witches'-broom. A disease characterized by globose woody galls on the branches of *H. brasiliensis* is reported from Java. The cause has not yet been determined.

Xylaria thwaitesii Cke. This fungus appears as black, flat, irregular bands or patches on the roots of *H. brasiliensis* in Ceylon. A rot of the bark and wood results and diseased trees ultimately die. The rotten wood is dark brownish gray and moist but hard at the center of a root, light brown and decayed outside of this region. Black lines may be present. The inner cortex becomes brown or yellow brown and friable.

HIBBERTIA. Shrubs or subshrubs with yellow or white showy flowers.

Puccinia hibbertiae McAlp. Reddish-brown to black rust pustules on lower leaf surfaces of *H. sericea* and *H. stricta* in Australia.

HIBISCUS. ROSE MALLOW. Shrubs or small trees cultivated for their showy flowers and ornamental fringe.

Aecidium erythrobasis B. and Br. Rust pustules on red leaf spots on *H. collinus* and *H. eriocarpus* in Ceylon and Uganda.

Aecidium garckeanum P. Henn. Rust on leaves of *H. crassinervius* and *H. micranthus* in Abyssynia and the Congo.

Bacterium hibisci Nak. and Tak. Small circular black spots appear on the cotyledons and young leaves, enlarging gradually and becoming irregular to angular, with dull white to yellow outer zones. On *Hibiscus* sp. in Korea.

Cercospora brachypoda Speg. On leaves of *Hibiscus* sp. in Argentina. Reported from Louisiana.

Cercospora hibisci-manihotis P. Henn. Circular to effuse dull-brown spots on leaves of *H. manihot* in Japan.

Colletotrichum hibisci Pöll. Circular to irregular brown leaf spots on *H. palustris* in Italy.

Colletotrichum hibiscicolum Rangel. On leaves of *H. tiliaceus* in Brazil.

Corticium salmonicolor B. and Br. See Citrus.

Fomes lamaoensis Murr. See Hevea.

Phyllachora hibisci Rehm. Shiny-black stromata on indefinite brown leaf spots on *H. furcatus* and *H. tiliaceus* in Ceylon, Samoa, and Brazil.

HIBISCUS—Continued.
Phyllachora minuta P. Henn. Black stromata on leaves of *H. tiliaceus* and *Thespesia populnea* in Porto Rico, Java, Australia, and the Philippines.
Physalospora hibisci Racib. On leaves of *H. tiliaceus* in Java.
Phytophthora melongenae K. Saw. See Solanum.
Poria hypobrunnea Petch. See Hevea.
Puccinia exilis Syd. var. **hibisci** Grove. Brown rust pustules on leaves of *Hibiscus* sp. in Uganda.
Puccinia hibisci P. Henn. Dull-brown rust pustules on leaves of *H. rostellatus* in the Congo.
Rhizoctonia destruens F. Tassi. See Solanum.
Roselinia bunodes B. and Br. See Citrus.
Septoria hibisci Sacc. Subcircular to irregular whitish leaf spots with dull-brown margins on *H. syriacus* in Italy.
Septoria rosae-sinensis Brun. Olive-brown leaf spots on *H. rosa-sinensis* in France.
Sphaerostilbe repens B. and Br. See Hevea.
Tubercularia hibisci Petch. On leaves of *H. sabdariffa* in Ceylon.
Uromyces heterogenens Cke. Brown rust pustules on leaves of *H. syriacus* in India.
Xylaria sp. This fungus causes a root disease of the ornamental *Hibiscus* in Hawaii.
Wilt. A wilt disease of *Hibiscus* spp., cause undetermined, is reported from Hawaii. Possibly the same as the preceding disease.
HIERACIUM. HAWKWEED. Hardy herbaceous perennials.
Ascochyta hieracii Lasch. On leaves of *H. pilosella* in Germany.
Cercosporella hieracii Jaap. Large subcircular to angular brown leaf spots on *H. prenanthoides* in Switzerland.
Entyloma calendulae (Oud.) De By. See Calendula.
Entyloma hieracii Syd. Leaf smut on *Hieracium* spp. in Europe. A form of *E. calendulae*.
Phyllosticta corcontica Kab. and Bub. Subcircular to angular zoned yellow-brown to brown leaf spots becoming gray on *H. alpinum* in Austria.
Phyllosticta hieracicola E. Rostr. Dark-brown leaf spots on *H. umbellatum* in Norway.
Phyllosticta hieracii Lasch. Subcircular to irregular, often confluent, zoned dull yellow-brown leaf spots on *H. pilosella* and *H. pseudocerinthe* in Spain and Germany.
Puccinia argentina Speg. Cinnamon-brown rust pustules on leaves and stems of *Hieracium* sp. and *Picrosia longifolia* in Argentina.
Ramularia conspicua Syd. Circular olive-brown leaf spots on *H. murorum* in Bohemia and Germany.
Ramularia corcontica Bub. and Kab. Subcircular to angular dull-yellow to brown leaf spots becoming gray on *H. alpinum* and varieties in Bohemia.
Ramularia helvetica Jaap. and Lind. Irregular greenish-gray or brown leaf spots on *H. albidum* in Switzerland.
Ramularia hieracii (Baum.) Jaap. On leaves of *H. boreale, H. schmidtii, H. sylvaticum, H. umbellatum,* and *H. vulgatum* in France, Switzerland, Austria, and Germany.
Ramularia subalpina Bub. Angular dirty-yellow leaf spots with narrow, dark-brown margins on *H. lanatum* in Yugoslavia.
Septoria guardarromica Gz. Frag. On leaves of *H. pilosella* in Spain.
Septoria mougeoti Sacc. and Roum. Large yellow leaf spots on *H. praealtum* and *Hieracium* sp. in France and Russia.
Septoria palustris (Ces.) Sacc. On leaves of *Hieracium* sp. in Italy.
HIEROCHLOA. TORRESIA Ag. Fragrant perennial grasses.
Puccinia borealis Juel See Agrostis.
Puccinia hierochloae Ito. Yellow to chestnut-brown rust pustules on leaves and sheaths of *H. borealis* and *Stipa siberica* in Japan.
Septoria oxyspora Penz. and Sacc. See Anthoxanthum.
HIPPEASTRUM. Showy bulbous plants.
Mosaic. An infectious mosaic, characterized by a mottling of the leaves of *Hippeastrum* spp., has been reported from Hawaii.
HIPPOCREPIS. Herbs or subshrubs.
Cercospora hippocrepidis Jaap. Subcircular gray to whitish leaf spots with brown margins on *H. comosa* in Switzerland.
Uromyces anthyllidis (Grev.) Schroet. See Anthyllis.
Uromyces hippocrepidis E. Mayor. Brown rust pustules on leaves of *H. ciliata* in Europe.
HIPPOPHAE. SEA BUCKTHORN. Ornamental woody plants grown for their silvery-gray foliage and bright-colored berries.
Dothidella hippophaeos (Pers.) Theiss. and Syd. Circular black stromata on leaves of *H. rhamnoides* in Italy and Switzerland.
Septocylindrium olivascens Thuem. See Elaeagnus.
Septoria hippophaes Desm. and Rob. On leaves of *H. rhamnoides* in France.
HIPPURIS. Perennial aquatic herbs.
Physoderma hippuridis Rostr. On leaves of *H. vulgaris* in northern Europe, Greenland, and Iceland.
HOHERIA. Small shrubs or trees, native of New Zealand.
Puccinia hoheriae Wakef. Brown rust on leaves and stems of *H. populnea* in New Zealand.
HOLCUS. SORGHUM. Johnson grass. Sudan grass. Annual or perennial grasses, cultivated for production of grain, forage, sirup, and broomcorn.
Acrothecium lunatum Wakker. On leaves and heads of *H. sorghum* in Ceylon and Java.
Aecidium evansii P. Henn. Rust on leaves of *H. sorghum* in the Union of South Africa.
Apiospora Haydii (Crouan.) Sacc. On *Holcus* sp. and *Dactylis* sp. in France.
Ascochyta sorghina Sacc. Long dull-brown leaf spots with blood-red margins on *H. sorghum* in Italy.
Bacillus omelianskii Serbinov. Said to cause a soft black rot of tops of plants of *H. sorghum* in Russia.
Beniowskia penniseti Wakef. See Pennisetum.
Botryodiplodia sorghi P. Henn. On culms of *H. sorghum* in Tanganyika.
Cercospora acerosa Dickh. and Arendt. H. Black spots on leaves of *H. sorghum* in Java.
Cerebella sorghi-vulgaris Subra. In ovaries of *H. sorghum* in India.
Colletotrichum andropogonis A. Zimm. Dark-red leaf spots on leaves of *H. sorghum* in Tanganyika.
Dilophia graminis (Fckl.) Sacc. See Triticum.
Helminthosporium caryopsidium Sacc. Attacks the grain of various varieties of *H. sorghum*, causing "wholesale destruction of seed" in China and the Philippines.
Leptosphaeria eustonia (Fr.) Sacc. See Secale.

HOLCUS—Continued.

Microbasidium sorghi (Pass.) Bub. and Ran. Elliptical red to dark-brown leaf spots on *H. sorghum* var. *saccharatum* in Yugoslavia.

Mycosphaerella ceres Sacc. Pale leaf spots with reddish margins on *H. sorghum* in Russia and Italy.

Mycosphaerella tassiana De N. On leaves of *H. lanatus* in Austria.

Ovularia holci-lanati Car. Small dull dark-brown leaf spots on *H.* (*Notholcus*) *lanatus* in Italy.

Phyllachora sorghi V. Hoeh. Black stromata on yellow to white leaf spots with red margins on *H. sorghum* in var. in Java and the Philippines.

Phyllosticta sorghina Sacc. Irregular leaf spots with red borders on *H. effusum*, *H. halepensis*, and *H. sorghum* in Russia, India, Italy, Portugal, and Argentina. Reported from Texas.

Puccinia holcina Erikss. Yellow-brown to brown rust pustules on leaves of *H. lanatus*, *H. mollis*, and *H. setiglumis* in Europe.

Ramulispora andropogonis Miuri. Leaf spot on *H. sorghum* in Manchuria.

Sclerospora graminicola (Sacc.) Schroet. var. **andropogonis sorghi** Kulk. This downy mildew attacks plants of *H. sorghum* in all stages of growth in India. The leaves of diseased seedlings are narrow, pale-yellow, and covered with a fine white down. Later on white streaks appear on the upper leaves and the tissues tear along these streaks. Diseased plants remain stunted and sterile. Older plants may also be attacked, singly or in groups, long, narrow streaks appearing on the leaves at first pale-yellow, then orange, and finally dark-brown in color.

Sclerospora philippinensis Weston. See Zea.

Septoria holci Pass. Small gray subcircular leaf spots on *H.* (*Notholcus*) *lanatus* in Italy.

Sorosporium ehrenbergii Kuhn. Smut sori in the ovaries, covered at first by a false membrane. On *H. cernuus* in Egypt and Tunis.

Sorosporium simii Pole-Evans. Smut attacking and destroying inflorescences of *H. halepense* in the Union of South Africa.

Tilletia holci (West.) Rostr. (*T. rauwenhoffii* Fisch de W.) Irregular, black smut sori in the ovaries of *Bromus arvensis*, *B. mollis*, *Holcus* (*Notholcus*), *lanatus* and *H. mollis* in Denmark, Belgium, and Great Britain. Reported from Washington and Oregon.

Tolyposporium filiferum Busse. Individual grains of the heads of *H. sorghum* in India, Egypt, and east Africa are transformed into smut sori. The sori are longer than the normal grain and light brown in color, soon rupturing, exposing the powdery spore masses.

Tolyposporium volkensii P. Henn. Black smut sori in the ovaries of *H. sorghum* in tropical Africa.

Ustilago bulgarica Bub. Greenish-brown smut sori in the ovaries of *H. sorghum* in Bulgaria.

Ustilago sorghicola Speg. Subcylindrical smut sori in the ovaries of *H. sorghum* in Argentina and Italy. The sori project beyond the glumes, reaching a length often of 8 millimeters.

HOMERIA. Bulbous plants from south Africa.

Uredo homeriae Bub. Rust on leaves of *Homeria* sp. in the Union of South Africa.

HOMOGYNE. Hardy perennials grown for their attractive white or purple heads of flowers.

Ascochyta homogynes Ranoj. Brown leaf spots on *H. alpina* in Yugoslavia.

Puccinia conglomerata (Strauss.) Kze. and Schm. Dark-brown rust pustules on leaves of *H. alpina* in France, Switzerland, Yugoslavia, Austria, and Germany.

Ramularia cervina Speg. On leaves of *H. alpina* in Yugoslavia, Italy, and Austria.

Septoria prostrata Kab. and Bub. Subcircular brown, then gray, leaf spots with dark-brown margins on *H. alpina* in Yugoslavia and Austria.

Uromyces veratri (DC.) Schroet. See Veratrum.

HONCKENYA. See Arenaria.

HORDEUM. BARLEY. SQUIRRELTAIL GRASS. Annual grasses.

Bacillus cerealinum Gentner. Brown spots or blotches appear on the nodes, upper internodes, and leaves of *H. vulgare* (*H. sativum*), *Secale cereale*, and *Triticum* sp. in Europe. The upper leaves become prematurely yellow and dry, the heads fill out poorly, and the glumes may split.

Cercospora elymi Rostr. Oblong dull-brown leaf spots on *H.* (*Elymus*) *arenarium* in Denmark.

Fusarium hordearium Duc. Attacks the leaves and stems of *H. distichon* in France.

Fusarium nivale (Fr.) Sor. See Secale.

Heterosporium hordei Bub. Rhombic or elliptic-oblong, often confluent, dull-yellow leaf spots with dark-purple margins on *H. distichum* and *H. sativum* in Denmark and Yugoslavia.

Micrococcus tritici Prill. See Triticum.

Mycosphaerella basicola FRANK. On leaves of *H. sativum* and *Secale cereale* in Sweden, Denmark, and Germany.

Mycosphaerella exitialis Morini. On culms of *H. sativum* and *Triticum* sp. in Japan, France, Denmark, Sweden, and Italy.

Mycosphaerella hordicola Hara. On leaf blades and culms of *Hordeum* sp. and *Triticum* sp. in Japan.

Ophiobolus cariceti (B. and Br.) Sacc. See Triticum.

Ophiobolus herpotrichus (Fr.) Sacc. See Triticum.

Ramularia hordei McAlp. Subcircular, then confluent, brown to dark-brown leaf spots on *Hordeum* sp. in Australia.

Rhizoctonia napi West. See Brassica.

Septoria elymi Rostr. On leaves of *H. arenarium* in Denmark.

Septoria halophila Speg. Large, ashen-colored blotches on leaves of *H. halophilum* in Argentina.

Tilletia hordei Koern. Dark-green smut sori in the ovaries, concealed at first by the glumes, then black, with a foetid odor. On *H. fragile* and *H. murinum* in Turkey, Algeria, Persia, and Australia.

Tilletia hordeina Ranoj. Yellow-brown spore masses in ovaries of *H. maritimum* in Yugoslavia.

Tilletia panicii Bub. and Ranoj. Dark violet-brown smut sori in the ovaries of *H. salinum* in Yugoslavia.

Tilletia trabuti Jacz. A smut forming brown spore masses in the spikelets of *H. murinum* in Algeria.

Tylenchus hordei Schöyen. See Avena.

Typhula graminum Karst. See Lolium.

HOSTA. NIOBE Ag. PLAINTAIN LILY. Hardy perennials.

Aecidium hostae Diet. Rust pustules on yellow, circular leaf spots on *H. sieboldiana* in Japan.

Ascochyta herreana P. Henn. On leaves of *H. ovata* in Germany.

Ascochyta hortensis Kab. and Bub. Circular to angular brown leaf spots with purple-brown margins on *H. albomarginata* in Bohemia.

Cercospora hostae Hori. On leaves of *H. sieboldiana* in China.

Fusarium versiforme Kab. and Bub. Irregular brown spots on both leaf surfaces of *H. albomarginata* in Bohemia.

Mycosphaerella hostae Syd. On leaves and petioles of *H. japonica* in Japan.

Phyllosticta funkiae Fen. Pale irregular leaf spots with brown margins on *H. ovata* in Italy.

Puccinia funkiae Diet. Black rust pustules on the lower leaf surfaces of *H. longipes*, *H. ovata*, *H. plantaginea*, and *H. sieboldiana* in Japan and other Asiatic countries.

Uredo hostae P. Henn. Brown rust pustules on yellow leaf spots on *Hosta* sp. in Japan.

HOTTONIA. FEATHERFOIL. Perennial aquatic herbs.
Doassansia hottoniae Rostr. Smut pustules in rufous leaf spots on *H. palustris* in Denmark.
HOVENIA. RAISIN TREE. Ornamental shrubs, grown for their handsome foliage.
Microsphaera yamadai Syd. Powdery mildew on leaves of *H. dulcis* in Japan.
HOYA. WAX PLANT. Tropical climbers or trailing evergreen shrubs.
Gloeosporium affine Sacc. Anthracnose on leaves of *Aloe hanburyana, Citrus aurantium,* and *Hoya carnosa* in Great Britain, Italy, Gibraltar, and the Philippines.
Gloeosporium hoyae Syd. Anthracnose on leaves of *H. luzonensis* in the Philippines.
Glocosporium intermedium Sacc. See Citrus.
Guignardia albicans Rehm. On leaves of *H. luzonensis* in the Philippines.
Phyllosticta asclepiadearum West. See Cynanchum.
Phyllosticta thuemenii Tass. On leaves of *H. carnosa* in Austria and Gibraltar.
Physalospora hoyae v. Hoehn. On leaves of *H. luzonensis* in the Philippines.
Puccinia variiformis Pat. Dark-brown rust pustules on leaves of *Hoya* sp. in Indo-China.
Septoria hoyae Sacc. Ivory-white irregular leaf spots with dull-brown margins on *H. carnosa* in Italy.
HUMULUS. HOP. Twining vines.
Ascochyta humuli Lasch. Pale-brown leaf spots on *H. lupulus* in Germany.
Ascochyta humuli Bub. and Kab. Circular to irregular greenish, then dirty-ochraceous to ashen, leaf spots on *H. lupulus* in Bohemia. This species if not synonymous with the preceding must be renamed.
Cercospora cantiariensis Salm. and Worm. Circular gray leaf spots with narrow purple-brown margins and surrounding yellow zones on *H. lupulus* in Great Britain.
Cercospora humuli Hori. Angular dark-brown spots, often coalescing, on *H. japonicus* and *H. lupulus* in Japan.
Fusoma parasiticum Salm. This fungus causes a serious wilt disease of hops in Great Britain. Above ground its presence is shown by a wilting of the stems, which break away easily or fall over, having been rotted just below the ground line. The bark and wood at this point are brown and dead. Pink pustules of the causative fungus appear on the basal parts of diseased plants.
Mosaic. A mosaic disease of *H. lupulus* is reported from Great Britain. The stems of diseased plants grow only to a height of 4 to 6 feet, the leaves are curled, more or less mottled, green and yellow in color, and very brittle. Diseased plants are sterile.
Peroplasmopara humuli Miy. and Tak. This serious downy mildew of the hop (*H. lupulus*) occurs in Japan and Great Britain. It has also been reported from Wisconsin. Small angular dark-green spots, with a water-soaked aspect, first appear on the leaves, becoming finally dark-brown. Diseased leaves dry up and die.
Phyllostieta bractearum Oud. On bracts of *H. lupulus* in Holland.
Phyllostieta japonica Fautr. Brown irregular leaf spots on *H. japonicus* in Japan and France.
Phyllosticta lupulina Kab. and Bub. Circular to angular, confluent, ashen-colored leaf spots with purple-brown borders on *H. lupulus* in Austria and Bohemia.
Plasmodiophora humuli Kirk. Causes a disease of *H. lupulus* in New Zealand and Tasmania which resembles clubroot of the crucifers.
Septoria divergens Bub. and Kab. Small subcircular to angular ochraceous-brown leaf spots with narrow brown margins on *H. lupulus* in Bohemia.
Septoria humuli West. On leaves of *H. lupulus* in Europe.
Septoria humulina Bond. Pale to dull-brown leaf spots on *H. lupulus* in Russia.
HURA. SAND-BOX TREE. Tropical trees.
Cercospora hurae Stevens. Small brown leaf spots on *H. crepitans* in Porto Rico.
Fomes lamaoensis Murr. See Hevea.
Helminthosporium hurae P Henn. Circular, then confluent, dull-brown leaf spots on *H. crepitans* in Brazil.
HUTCHINSIA. Low, annual or perennial herbs.
Puccinia hutchinsiae Rud. Dark-brown rust pustules on leaves of *H. alba* in Turkestan.
HYACINTHUS. HYACINTH. Hardy bulbous plants cultivated for their showy flowers.
Ascochyta hyacinthi Tassi. On leaves of *Agapanthus umbellatus* and *H. orientalis* in Italy and Australia.
Bacillus croci Mizus. See Crocus.
Bacillus hyacinthus septicus Heinz. Bulbs, leaves, and flower stalks are attacked by this disease, which starts as a soft rot of the bulb, rapidly extending into the above-ground parts of the plant. Leaves and flower buds wither and drop off. Diseased tissues soon break up, forming a foul-smelling slime. The disease has been reported on cultivated *Hyacinthus* in Great Britain and Germany. By some workers this species is considered synonymous with *B. caratovorus.*
Bacterium hyacinthi Wakke. The disease known as Wakker's hyacinth disease, or the yellow-slime disease, is characterized by yellow stripes beginning near the apex of the leaf and extending downward rapidly, but only slowly sidewise, so that finally the leaf will have a central dead stripe along its entire length with the margins still green. In the bulb the vascular bundles become yellow and full of bacterial slime. The yellow slime extends upward into the bundles of other scales and sidewise slowly into the parenchyma until finally the entire bulb is destroyed. In advanced stages other bacteria enter and aid in destroying infected bulbs. All varieties of *Hyacinthus* are attacked. The disease has been reported from France, Great Britain, Holland, Italy, and Germany. There is one report of its occurrence in the United States.
Peziza vesiculosa Bull. This fungus is reported as attacking entire plants, with a growth of mold externally, in Germany on *Hyacinthus* in variety.
Puccinia liliacearum Duby. See Ornithogalum.
Septoria podolica Bub. and Wrobl. On leaves of *H. leucophaeus* in Galicia.
Sclerotinia tuliparum (Wakk.) Rehm. See Tulipa.
Tylenchus dipsaci Kuehn. See Narcissus.
Uromyces scillarum (Grev.) Wint. A common and widespread rust which produces brown pustules on both leaf surfaces, disfiguring the affected plants. The hosts are *Bellevalia comosa, B. fuliginosa, B. mauritanica, Endymium nutans, Hyacinthus ciliatus, H. fastigiatus, H. orientalis, H. pratensis, Leopoldia bouriana, Muscari botryoides, M. comosum, M. monstrosum, M. neglectum, M. polyanthum, M. racemosum, M. tenuiflorum, Ornithogalum comosum, Scilla autumnalis, S. bifolia, S. bertolonii, S. campanulata, S. italica, S. obtusifolia, S. peruviana, S. pratensis, S. pumila, S. ramburii, S. verna, Simethis bicolor, Urginea maritima,* and *U. scilla.* It occurs in Great Britain, France, Spain, Portugal, Italy, Switzerland, Holland, Russia, Austria, Hungary, Corsica, Montenegro, Serbia, Rumania, Greece, Morocco, Algeria, Tunis, Egypt, Dalmatia, the Union of South Africa, and Germany.

HYACINTHUS—Continued.

Ustilago vaillantii Tul. One of the smuts producing black powdery masses of spores in place of the anthers and ovaries in the flowers. It is perennial in the bulbs and hence easily carried from place to place. The flowers are disfigured and their commercial value lowered. The hosts are *Bellevalia romana*, *B. trifoliata*, *Chionodoza luciliae*, *Chionodoza* sp., *Gagea* spp., *Hyacinthus* spp., *Muscari comosum*, *M. racemosum*, *M. schliemanni*, *M. tenuiflorum*, *Scilla anthericoides*, *S. bifolia*, *S. cernua*, *S. lilio-hyacinthus*, *S. maritima*, *S. trifolia*, *Urginea anthericoides*, and *U. maritima*, reported from Great Britain, France, Corsica, Italy, Belgium, Serbia, Egypt, Algeria, Austria, Germany, and from a few localities in the United States.

HYALIS. See Ixia.

HYDRANGEA. Ornamental woody plants grown for their showy flowers.

Aecidium hydrangeae Pat. Rust on leaves of *H. davidi* in Thibet.

Aecidium hydrangeae-paniculatae Diet. Rust pustules on large, irregular, yellow, or reddish leaf spots on *H. paniculata* in Japan.

Aecidium hydrangiicolum P. Henn. Rust on leaves of *H. hirta* and *H. thunbergi* in Japan.

Ascochyta hydrangeae Arn. Circular to irregular greenish-gray spots on leaves and stems of *H. hortorum* in France. The spots may spread to include the entire area of leaves.

Cercospora hydrangeicola Speg. Circular, then confluent, purplish leaf spots on *H. hortensis* in Argentina.

Cercospora obtegans Syd. On leaves of *H. hortensis* in Japan.

Clasterosporium hydrangeae Sacc. On *H. hortensis* in Italy and Madeira.

Rhytisma sp. On leaves of *H. paniculata* in Japan.

Septoria anthophila Fl. Tass. On flowers of *H. hortensis* in Italy.

Septoria hydrangeae Bizz. Irregular, then confluent, dull-brown leaf spots with blood-red margins on *H. hortensis* in Germany. Said to cause serious damage. Reported from Ohio.

HYMENAEA. Tropical trees.

Roselinia pepo Pat. See Citrus.

Uredo hymenaeae Mayor. Powdery light-brown rust pustules covering the under leaf surfaces of *H. courbaril* in Porto Rico, Cuba, and northern South America.

HYMENOCALLIS. SPIDER LILY. Bulbous plants.

Tubercinia javanica Koord. Large dark-brown areas on leaves of *Hymenocallis* sp. in Java.

HYMENOPHYLLUM. Filmy fern.

Micropeltis hymenophylli Pat. Small black fruiting bodies on leaves of *Hymenophyllum* sp. in Tahiti.

Sporotrichum niveum Allesch. and Henn. On leaves of *H. bridgesii* in Chile.

HYOSCYAMUS. HENBANE. Herbs cultivated for medicinal purposes.

Ascochyta hyoscyami Pat. Circular dull-brown leaf spots on *H. niger* in Tunis, Russia, Hungary, and Germany.

Ascochyta pinzolensis Kab. and Bub. Irregular and confluent brown or dull-yellow leaf spots, becoming white with brown margins on *H. niger* in Italy.

Peronospora hyoscyami De By. Downy mildew on leaves of *H. niger* in Bohemia, Silesia, and and Russia. See also Nicotiana.

Puccinia hyoscyami P. Magn. Dark-brown rust pustules on leaf blades and petioles of *H. senecionis* in Persia.

Septoria hyoscyami Höll. Dull-yellow leaf spots with brown margins on *H. niger* in Hungary.

Septoria pinzolensis Kab. and Bub. Circular to angular brown or dull-yellow leaf spots, becoming white with brown margins on *H. niger* in Italy.

HYOSERIS. Stemless herbs.

Entyloma aposeridis Jaap. Smut sori in small dull-brown leaf spots on *H. foetida* in Austria.

Phyllosticta aposeridis Allesch. Irregular dull-yellow to brown leaf spots on *H. foetida* in Germany.

Protomycopsis hyoseridis Syd. Circular yellow leaf spots on *H. baetica* in Italy.

Puccinia hyoseridis-radiatae R. Maire. Cinnamon-brown to dark-brown rust pustules on leaves of *H. radiata* and *H. scabra* in Tripoli, Spain, and Dalmatia.

Septoria hyoseridis Maire. Brown leaf spots with purple margins on *H. radiata* in tropical Africa.

HYPERANTHERA. See Moringa.

HYPERICUM. ST.-JOHN'S-WORT. Annual herbs.

Ascochyta hyperici Lasch. Dull-brown leaf spots on *H. perforatum* in Italy and Germany.

Melampsora hypericorum Wint. Powdery orange-yellow then reddish-brown rust pustules on leaves of *Androsaemum* spp. and *Hypericum* spp. in Europe, Asia, and Africa.

Melampsora kusanoi Diet. Chestnut-brown, then black, rust pustules on yellow sunken leaf spots on *H. ascyron* in Japan.

Melampsora sancti-johannis Barcl. Rust on leaves of *H. cernuum* and *H. patulum* in India.

Metasphaeria cryptospila (Berk.) Sacc. On leaves of *Hypericum* sp. in New Zealand.

Mycosphaerella hyperici (Auersw.) Starb. On stems of *Hypericum* spp. in Europe.

Ovularia minutissima Syd. Circular to elliptical brown leaf spots with purple margins on *H. quadrangulum* in Germany.

Ramularia coleosporii Sacc. See Campanula.

Septoria carestiana Ferr. Pale-yellow or reddish leaf spots on *H. montanum* in Italy.

Septoria hyperici Desm. and var. **hyperici-quadranguli** C. Mass. Circular oblong, or indefinite, red-brown leaf spots with dull-yellow margins on *H. burserum*, *H. hirsutum*, *H. montanum*, *H. perforatum*, *H. pulchrum*, and *H. quadrangulum* in Europe.

Septoria hyperici-burseri R. Maire. On leaves of *H. burserum* in France.

Uredo hyperici-japonici Petch. Rust on leaves of *H. japonicum* in Ceylon.

Uredo hyperici-mysorensis Petch. Rust on leaves of *H. mysorense* in Ceylon.

HYPOXIS. GOLD-EYE GRASS. STAR GRASS. Herbaceous plants with hard root stocks or corms.

Cylindrosporium guttatum Wint. Round to irregular dull-brown leaf spots on *Hypoxis* sp. in Brazil.

Puccinia expallens Syd. Gray-brown rust pustules on leaves of *H. aurea* in India.

Puccinia hypoxidis McAlp. Dark-brown to black rust pustules on both leaf surfaces of *H. hygrometrica* in Victoria, Australia.

Uromyces hypoxidis Cke. Brown rust pustules on both leaf surfaces of *H. oligotricha* in Natal and Uganda.

IBERIS. CANDYTUFT. Small flower-garden and border plants.

Helminthosporium iberidis Pöll. Circular dull-brown leaf spots on *Iberis* sp. in Italy.

Puccinia iberidis Duby. Rust on leaves of *I. sempervirens* in France, Switzerland, and Belgium.

ICACOREA. See Ardisia.

ICHTHYOMETHIA. See Piscidia.

IDESIA. Ornamental trees, grown for their handsome foliage and attractive berries.

Melampsora idesiae Miy. Yellow to brown rust pustules on leaves of *I. polycarpa* in Japan.

ILEX. Holly. Maté, sometimes called Paraguay tea. Evergreen or deciduous woody plants, grown for their attractive leaves and berries. The leaves of several South American species are used for beverage purposes.

Boydia insculpta (Oud.) Grove. Destroys twigs of *I. aquifolium* in Great Britain and probably continental Europe.

Cercospora ilicicola Maubl. On leaves of *I. paraguariensis* in Brazil. A doubtful report from Texas.

Cercospora yerbae Speg. Dull-brown circular leaf spots on *I. amara* in Argentina.

Cercosporina mate Speg. Circular ashen-colored leaf spots with purple margins on *I. paraguariensis* in Argentina.

Colletotrichum yerbae Speg. Subcircular whitish or ashen leaf spots on *I. paraguariensis* in Argentina and Brazil.

Cylindrosporium pollaccii Turc. Circular whitish leaf spots with broad, dark-purple margins on *I. furcata* in Italy.

Depazea ilicicola Fr. On leaves of *I. aquifolium* in France.

Exobasidium giseckiae Allesch. White to reddish swellings on leaves and flowers of *Giseckia pharnacioides* and *I. aquifolium* in Italy and tropical Africa.

Gloeosporium alutaceum Sacc. Anthracnose on leaves of *I. aquifolium* in Italy.

Gloeosporium aquifolii Penz. and Sacc. Anthracnose on leaves of *I. aquifolium* in Italy.

Gloeosporium orthosporum Sacc. White indefinite leaf spots on *I. aquifolium* in Italy.

Laestadia ilicis Jacz. On leaves of *I. aquifolium* in Switzerland.

Leptosphaeria paraguariensis Maubl. On leaves of *I. paraguariensis* in Brazil.

Peckia mate Speg. Fruiting bodies occur on lower leaf surfaces of *I. paraguariensis* in Argentina and cause serious damage.

Phyllosticta azevinhi Torr. Brown leaf spots on *I. azevinhi* in Madeira.

Phyllosticta haynaldi Roum. Indefinite dull-red leaf spots on *I. aquifolium* in Denmark and France.

Phyllosticta iliciperda Oud. Irregular gray leaf spots on *I. aquifolium* in Holland.

Phyllosticta ilicis Oud. Pale irregular leaf spots on *I. aquifolium* in Holland.

Phyllosticta mate Speg. Circular, then confluent, silvery leaf spots on *I. paraguariensis* in Argentina and Brazil.

Phyllosticta yerbae Speg. Definite circular dull-brown leaf spots on *I. paraguariensis* in Argentina.

Rhytisma himalense Syd. and Butl. Black, slightly raised areas on leaves of *Ilex* sp. in India.

Rhytisma ilicis-latifoliae P. Henn. Black patches on subcircular leaf spots on *I. integra*, *I. latifolia*, *I. othera*, and *I. peduncularis* in Japan.

Septoria orthospora Lév. On leaves of *I. aquifolium* in France.

Trabutia lagerheimiana (Rehm.) Theiss. and Syd. Elliptical shiny black stromata on leaves of *I. scopulorum* in Ecuador.

Venturia ilicifolia Cke. On leaves of *I. aquifolium* and *I. balearica* in Europe.

ILLICIUM. Anise tree. Small trees or shrubs.

Gloeosporium illicii Hemmi. Anthracnose on *I. anisatum* in Japan.

Phyllosticta aromatica F. Tassi. Circular to elliptical gray leaf spots on *I. floridanum* in Italy.

IMPATIENS. Snapweed. Touch-me-not. Balsam. Flower-garden annuals.

Ascochyta impatientis Bres. Subcircular to angular dull-yellow to brown leaf spots on *I. parviflora* in Germany.

Cercospora campi-silii Speg. Circular to angular brown leaf spots on *I. nolitangere* in Denmark, Italy, and Austria.

Cercospora impatientis Baeuml. Circular, then irregular, gray or whitish leaf spots with dull-brown margins on *I. noli-tangere* and *I. parviflora* in Hungary.

Cronartium flaccidum (Alb. and Schw.) Wint. See Paeonia.

Gloeosporium impatientis Petch. Soft rot of stems of *I. balsamina* in Ceylon.

Puccinia komarovi Tranzsch. Powdery cinnamon-brown to chestnut-brown rust pustules on leaves of *I. amphorata* and *I. parviflora* in Turkestan and India.

Uredo balsaminae Cke. Rust on leaves of *I. oppositifolia* in Ceylon.

IMPERATA. Large perennial tropical grasses.

Cercospora imperata Syd. Leaf rust on *Imperata* sp. in the Philippines.

Phyllachora cyperi Rehm. var. **donacis** Berl. and Sacc. Tar spot on leaves of *I. arundinacea* in India.

Phyllachora imperatae Syd. Black stromata on leaves of *I. cylindrica* in the Philippines. Probably identical with the preceding species.

Puccinia fragosoana Beltram. Leaf rust on *I. cylindrica* in Spain.

Puccinia infuscans Arth. and Holw. Brown powdery leaf rust on *I. braziliensis* in Guatemala.

Puccinia rufipes Diet. Dull-yellow to black rust pustules on leaves of *I. arundinacea* and *I. cylindrica* in the Philippines, Japan, Ceylon, China, India, and Egypt.

Sphacelotheca schweinfurthiana (Thuem.) Sacc. Smut sori replacing ovaries of *I. arundinacea* and *I. cylindrica* in Uganda, Egypt, Tunis, Tripoli, and Spain.

INDIGOFERA. Indigo. Shrubs or perennial herbs sometimes grown for ornament. Several species furnish dyestuff.

Corticium salmonicolor B. and Br. See Citrus.

Diplodia cacaoicola P. Henn. See Theobroma.

Gloeosporium inocarpi Sacc. Anthracnose on leaves of *I. arrecta* in Malaya.

Pythium indigoferae Butl. On leaves of *I. arrecta* in India.

Ravenelia indigoferae Tranzsch. Powdery brown rust pustules on leaves and stems of *I. anil*, *I. conzattii*, *I. cuernavacana*, *I. mucronata*, *I. palmeri*, and *I. suffruticosa* in Mexico, Central America, northern South America, West Indies, Trinidad, and Bermuda.

Ravenelia laevis Diet. and Holw. Powdery brown rust pustules on leaves of *I. densiflora* and *I. jaliscensis* in Mexico.

Ravenelia schroeteriana P. Henn. Powdery cinnamon-brown rust pustules on leaves of *Indigofera* sp. in Argentina.

Uredo maranguensis P. Henn. Ashen-brown rust pustules on leaves of *I. arrecta* in tropical Africa.

Uromyces inbelensis P. Henn. Brown rust pustules on *Indigofera* sp. in the Congo.

Uromyces orientalis Syd. Cinnamon-brown rust pustules on leaves of *I. cordifolia*, *I. glandulosa*, and *I. hirsuta* in India.

Uromyces sphaerocarpus Syd. Brown rust pustules on leaves of *I. pseudotinctoria* and *I. tinctoria* in Japan.

INGA. Tropical trees and shrubs, commonly used as coffee shade.

Linospora guaranitica Speg. Indefinite spots on leaves of *Inga* sp. in Brazil.

Ophidothella ingae (P. Henn.) Theiss. and Syd. Dull-black irregular stromata on large yellow or yellow-brown leaf spots on *I. strigillosa* and *Inga sp.* in Brazil.

Ravenelia ingae (P. Henn.) Arth. Cinnamon-brown rust pustules on leaves and stems of *I. edulis*, *I. laurina*, and *I. vera* in Mexico, South and Central America, and the West Indies.

INGA—Continued.
Stilbella flavida (Cke.) Lind. See Coffea.
Uredo curvata Arth. Brown leaf rust on *I. vera* in Cuba.
Uromyces ingicola P. Henn. Brown rust pustules on leaves of *Inga* sp. in Brazil.
Uromyces porcensis Mayor. Rust on *I. ingoides* in Colombia.
INTSIA. See Afzelia.
INULA. Herbs with yellow or orange flower heads.
Aecidium inulae-crithmoidis Pat. Rust on leaves of *I. crithmoides* in Dalmatia
Aecidium inulae-helenii Const. Rust on yellow irregular leaf spots on *I. helenium* in Italy.
Ascochyta inulicola Petr. On *I. conyza* in Bohemia.
Coleosporium inulae Rabh. Yellow rust pustules on *Pinus sylvestris, Inula aschersoniana, I. candida, I. coppa, I. ensifolia, I. graveolens, I. helenium, I. heterolepis, I. hirta, I. media, I. salicina, I. vaillantium,* and *I. viscosa* in Europe, Asia Minor, northern Africa, the Congo, and the Canary Islands.
Erysiphe taurica Lév. See Althaea.
Ovularia inulae Sacc. and **forma major** P. Brun. Angular to irregular leaf spots with purple margins on *I. dysinterica* in France.
Phyllosticta inulae Allesch. Circular whitish to dull brown leaf spots on leaves of *I. britannica* in Germany.
Ramularia cupulariae Pass. On leaves of *I. conyza* and *I. viscosa* in Denmark, Spain, and Germany.
Ramularia inula-britannicae Allesch. Subcircular yellow, then brown, leaf spots on *I. britannica* in Germany.
Septoria dysentericae P. Brun. Irregular to angular small white leaf spots with narrow brown margins on *I. dysenterica* in France.
Septoria inulae Sacc. and Speg. Rufous-brown leaf spots on *I. britannica* and *I. salicina* in China and Italy.
Uredo inulae-candidae Trott. Yellow rust pustules on leaves of *I. candida* in Greece and Dalmatia.
IPOMOEA. MORNING-GLORY. SWEET POTATO. Annual or perennial twining herbs.
Aecidium kaernbachii P. Henn. Rust on leaves of *Ipomoea* spp. in Japan, Indo-China, Ceylon, New Guinea, Amboina, and the Philippines.
Cercospora batatae Zimm. Irregular dark-brown leaf spots with paler centers on *I. batatas* in Tanganyika, Indo-China, Japan, Formosa, and the Philippines.
Cercospora stuckertiana Syd. Subcircular gray leaf spots on *Ipomoea* sp. in Argentina.
Cercospora timorensis Cke. Circular brown leaf spots on *I. cymosa* in Molucca.
Cylindrosporium bakeri Syd. On *Ipomoea* sp. in the Philippines.
Helicobasidium mompa Tan. See Morus.
Marsonia ipomoea Cke. and Mass. Brown areas on stems and leaves of *Ipomoea* sp. in England.
Phyllosticta stuckertii Speg. Small leaf spots with purple borders on *Ipomoea* sp. in Argentina.
Puccinia batatae Syd. Brown rust pustules on leaves of *I. paniculata* in Natal and the Congo.
Puccinia holosericea Cke. Brown rust pustules on leaves of *I. holosericea* in Tanganyika and Natal.
Puccinia insignis Holw. Rust on leaves of *Ipomoea* sp. in Mexico.
Puccinia macrocephala Speg. Black rust pustules on leaves of *Ipomoea* sp. and *Convolvulus* sp. in South America.
Puccinia nocticolor Holw. Yellow, then black, powdery rust pustules on leaves of *I. fistulosa, I. intrapilosa,* and *I. murucoides* in Mexico and Guatemala.
Puccinia rubicunda Holw. Rust on leaves of *Ipomoea* sp. in Mexico.
Puccinia superflua Holw. Black powdery rust pustules on yellow leaf spots on *I. murucoides* in Mexico.
Ramularia batatae Rac. Angular brown to dark-brown leaf spots on *I. batatas* in Java.
Sorosporium ipomoeae Spesch. Smut on *Ipomoea* sp. in Russia.
Uredo ipomoeae-pentaphyllae P. Henn. Rust on leaves of *I. pentaphylla* in Brazil.
Uredo speschnewii S. and S. Brown powdery rust pustules on leaves of *Ipomoea* sp. in Transcaucasia.
Uromyces comptus Syd. Dark-brown to black rust pustules on leaves of *I. bipinnatipartita* in Tanganyika and the Union of South Africa.
Uromyces ipomoeae (Thuem.) Berk. Yellow, then black, rust pustules on leaves of *I. argyreoides* in the Union of South Africa.
Uromyces pachyceps Lagh. Rust on leaves of *Ipomoea* sp. in Ecuador.
IRESINE. BLOOD LEAF. Ornamental-leafed bedding plants.
Cercospora gilbertii Speg. See Celosia.
Puccinia macropoda Speg. Cinnamon-brown to black rust pustules on leaves of *I. angustifolia, I. celosia, I. celosioides,* and *I. elatior* in South America and the West Indies.
Puccinia striolata (Speg.) Arth. Powdery brown rust pustules on leaves of *I. angustifolia* and *I. celosia* in Trinidad, Porto Rico, Cuba, St. Thomas, and Argentina.
Septoria iresines Speg. Circular or elliptical definite whitish leaf spots with dull-brown margins on *I. celosioides* in Argentina.
Uromyces celosiae Diet. and Holw. See Celosia.
Uromyces iresines Lagh. Dull-brown rust pustules on leaves of *I. celosia, I. elatior,* and *I. paniculata* in Guatemala, St. Thomas, Ecuador, and Colombia.
IRIS. Perennial rhizomatous or bulbous plants.
Ascochyta iridis Oud. Leaf spot of *I. pseudacorus* in Holland.
Ascochyta pseudacori All. On leaves of *Iris* (cultivated var.) in France.
Bacterium iridis v. Hall. Infected leaves turn yellow and dry up. The underground portions are soft rotted. The disease is generally at its worst during the flowering season. It is readily carried on rhizomes or bulbs, either as small lesions or by means of the bacteria themselves in soil or debris or on the bulb scales. Soft rot of *Iris* bulbs and rhizomes is common in the United States, but the causal agents mentioned have been other than the above. *Bacillus omnivorus* is also given as the cause of an *Iris* rot in Europe. The disease occurs on many varieties and species of cultivated *Iris* in Holland, Great Britain, and France.
Cladochytrium (Physoderma) iridis De By. Causes a leaf spot and blighting of *Iris* sp. in Germany.
Heterosporium montenegrinum Bub. Forms pale spots with purple-brown margins on leaves of *I. graminea* in Montenegro. Said to be distinct from *H. gracile.*
Leptosphaeria heterospora (De Not.) Niessl. Leaf spot and lesions on *Iris* rhizomes in Europe.
Leptosphaeria iridicola Lamb. and Fautr. (*L. rectis* [B. and Br.] Ces. and De Not.) On *I. foetidissima* in France and Italy.
Macrophoma rhabdosporioides Lamb. and Fautr. Reported as the cause of a leaf spot of *I. foetidissima* in France.
Metasphaeria iridicola (Desm.) Sacc. On leaves and stems of *I. foetidissima* in Algeria.
Microdiplodia iridicola Gz. Frag. On *I. filifolia, I. longepetala, I. pumila,* and *I. spuria* in Spain.
Mycosphaerella iridis (Auersw.) Schroet. Causes a leaf spot on *I. filifolia, I. pseudacorus, I. pumila,* and *I. sysirinchium* in Great Britain, Denmark, France, Italy, Spain, and Germany.

RIS—Continued.

Mystrosporium adustum Mass. This fungus forms large black crusty patches on the outer bulb scales, the mycelium reaching to the heart of the bulb. The disease is readily carried on the bulbs of the host (*I. reticulata*). It is said "to carry off bulbs by the hundreds, making it necessary to lift the bulbs every year and sort out the diseased ones for destruction and dry and store the remainder." The disease occurs in England and Denmark.

Nectria paludosa (Fckl.) Sacc. On leaves of *Iris* sp. and *Typha* sp. in Europe.

Ophiobolus pedunculatis Feltg. At the base of stems of *I. pseudacorus* in Luxemburg. *O. bactrosporus* Feltg. and *O. pseudacori* Feltg. are reported on the same host and from the same region.

Phoma agapanthi Thuem. Attacks the base of *Iris* plants in Europe.

Phoma iridis Cke. On leaves of *I. foetidissima* in Europe.

Phyllosticta iridicola Gz. Frag. Reported from Spain as the cause of leaf spot of *I. pseudacorus*.

Physoderma tenue (Nowk.) Karst. See Nymphaea.

Puccinia capensis Diet. This rust fungus produces brown pustules on the leaves of *Iris* sp. in the Union of South Africa.

Puccinia caucasica Martino. Large stroma-like rust patches on leaves of *I. flavescens* in the Caucasus.

Puccinia melanopsis Syd. Black rust pustules are produced on both leaf surfaces of *I. sisyrinchium* in Asia Minor.

Ramularia rollandi Faut. On leaves of *I. pseudacorus* in France.

Schinzia (Naegelia) cellulicola. Causes swellings on the roots of *Iris* sp. in Switzerland.

Sclerotium crustuliforme Rob. At the base of plants of *I. germanica* in Belgium.

Sclerotium durum Pers. At the base of plants and on rhizomes and bulbs of *Iris* spp. in Europe.

Sclerotium iridis Thuem. Attacks the rhizomes of cultivated *Iris* varieties, causing a soft rot distinct from bacterial rot. Several shipments of *Iris* rhizomes from Germany have been completely destroyed by what is probably this species. Doubtless also occurs in Holland and France. At least two other species of Sclerotium have been reported on *Iris* spp. in Europe, and it is not clear how many species really are involved. What has been referred to as *S. semen* has been intercepted on *I. tingitana*.

Scolecotrichum cladosporioideum R. Maire. On leaves of *I. foetidissima* in Algeria.

Scolecotrichum iridis Fautr. and Roum. On leaves of *Iris* sp. in Europe.

Septoria iridina Sacc. On leaves of *I. foetidissima* in Portugal.

Septoria iridis Massal. Circular, brown spots with light-brown margins on leaves and flower stalks of *I. florentina* and *I. germanica* (in var.) in Italy and Dalmatia.

Stagonospora iridis C. Mass. Causes a leaf spot disease on cultivated *Iris* in Great Britain and *I. florentina* in Tunis.

Trabutia atroinquinans (Wint.) Theiss. and Syd. On *Iris* sp. in Portugal.

Trabutia molleriana Cavara. On leaves of *Iris* sp. in Portugal.

Uredo iridis (Thuem.) Plowr. Forms narrow elliptical chestnut-colored rust pustules on both surfaces of leaves of *I. florissima*. Said to be distinct from *Puccinia iridis*, which is present in the United States.

ISATIS. Herbs cultivated for ornament and for dyestuff.

Aecidium isatidis P. Har. Rust on leaves of *I. tinctoria* in France.

Peronospora isatidis Gäum. Downy mildew on leaves of *I. tinctoria* in Switzerland.

ISCHNOSIPHON. Calathealike perennial herbs.

Uredo ischnosiphonis P. Henn. Powdery brown rust pustules on leaves of *I. leucophaeus* in Brazil.

ISOPYRUM. Annual or perennial dwarf stemless plants.

Aecidium isopyri Schroet. Rust on leaves of *I. thalictroides* in France, Switzerland, Belgium, and Germany.

Cercospora isopyri v. Hoeh. Irregular dark-brown areas on leaf blades and petioles and on stems of *I. thalictroides* in Austria.

Peronospora parvula Schneid. Downy mildew on leaves of *I. fumarioides* in Siberia.

Triphragmium isopyri Moug. and Nestl. Black rust pustules on leaf blades and petioles and on stems of *I. thalictroides* in Europe.

IXIA. HYALIS. Ag. Spring flowering cormous plants from south Africa with grasslike foliage.

Bacillus ixiae Sever. Appearing first as a browning and dying back of the tops of the plants, followed by a soft rot of the bulbs of *I. maculata* in Italy and Holland.

Uromyces ixiae (Lév.) Wint. Small yellow rust pustules, becoming brown on leaves of *Acidanthera erscapa, Ixia axillaris, I. coerulescens, I. erecta, I. paniculata, I. patens, I. polystachya, Sparaxis grandiflora*, and *Watsonia densiflora* in south Africa and Australia.

Uromyces zeyheri Bub. Yellow to brown rust pustules on both leaf surfaces of *I. scillaris* in south Africa.

IXIOLIRION. Hardy spring-flowering bulbs.

Aecidium ixioliril Komarov. Rust on leaves of *I. tataricum* in central Asia.

Aecidium tataricum Rostr. Rust on leaves of *I. tataricum* in Transcaspia.

IXORA. Woody plants with evergreen leaves and showy flower clusters.

Aecidium ixorae Arth. Rust on leaves of *I. ferrea* in Cuba.

Colletotrichum ixorae Griff. and Maubl. Large, pale anthracnose spots on leaves of *I. alba* in France.

Endophyllum ixorae Gäum. Leaf rust on *I. javanica* in Guam.

Phyllachora ixorae Theiss. and Syd. Shiny black stromata on leaves of *I. parvifolia* in India.

Phyllosticta ixorae Rangel. On leaves of *Ixora* sp. in Brazil.

Stagonospora ixorae Rangel. On leaves of *I. coccinea* and *Ixora* sp. (cult.) in Brazil.

JACARANDA. Trees and shrubs with handsome tubular flowers.

Aecidium circinatum Wint. Rust on leaves of *Jacaranda* sp. in Brazil.

Aecidium jacarandae P. Henn. Rust on leaves of *Jacaranda* sp. in Brazil.

Aecidium puttemansianum P. Henn. Rust on leaves of *Jacaranda* sp. in Brazil.

Fomes lamaoensis Murr. See Hevea.

JACKSONIA. Stiff, leafless shrubs and subshrubs.

Cronartium jacksoniae P. Henn. Brown rust pustules on stems of *Aotus villosum, Bossiaea cinerea, Gompholobium latifolius, Jacksonia scoparia*, and *Platylobium formosum* in Australia.

Uromyces politus (Berk.) McAlp. Bright-orange rust pustules, becoming brown to black, on dark-purple, elongated patches on stems of *Muehlenbeckia* (*Jacksonia*) *cunninghami* in Australia.

JACQUEMONTIA. Tropical climbing herbs.

Aecidium jacquemontiae E. and E. Rust on leaves of *J. pentantha* in Mexico.

Uredo jacquemontiae P. Henn. Powdery dull-yellow rust pustules on leaves of *Jacquemontia* sp. in New Guinea.

Uromyces gemmatus B. and C. Rust on leaves of *J. nodiflora* in Porto Rico, Cuba, Jamaica, and St. Croix.

JACQUINIA. Tropical American trees and shrubs.
Phyllachora conspicua Ferd. and Winge. Dull-black stromata on leaves of *J. armillaris* in the American Virgin Islands.
Phyllachora inclusa (B. and C.) Sacc. Small black stromata on leaves of *J. aurantiaca, J. berterii,* and *Jacquinia* sp. in Porto Rico, Guatemala, Nicaragua, and Paraguay.
JAMBOSA. See Caryophyllus.
JASMINUM. JASMINE. JESSAMINE. Climbing or erect shrubs, with attractive, often fragrant, flowers.
Aecidium jasminicola P. Henn. Rust distorting leaves and branches of *J. floribundum* in Abyssinia.
Aecidium longaense P. Henn. Rust on yellow-brown leaf spots on *J. microphyllum* in the Union of South Africa.
Blastospora butleri Syd. Brown rust pustules on leaves of *J. malabaricum* in India.
Laestadia jasminicola (Desm.) Sacc. Black sunken leaf spots on *J. officinale* in France.
Meliola jasminicola P. Henn. Black superficial fungus patches on upper leaf surfaces of *J. auriculatum* and *J. sambac* in India and Indo-China.
Mycosphaerella jasmini-officinalis Siem. On leaves of *J. officinale* in Southern Russia.
Phyllosticta jasminorum Togn. On leaves of *J. officinale* in Italy.
Phytophthora syringae Kleb. See Syringa.
Puccinia abyssinica (P. Henn.) Syd. Brown rust pustules on circular to irregular sunken leaf spots on *J. abyssinicum* in Abyssinia.
Puccinia chrysopogi Barcl. See Andropogon.
Puccinia exhauriens Thuem. Cinnamon-brown rust pustules on leaves and branches of *J. flexile* and *J. tortuosum* in Ceylon and the Union of South Africa.
Puccinia jasmini DC. Dark-brown rust pustules on leaves and stems of *J. fruticans* in Europe and northern Africa.
Puccinia zimmermanniana P. Henn. Brown rust pustules on leaves of *J. mauritianum* in east Africa.
Septoria aitchisoni Syd. Circular dull-brown leaf spots with raised purple margins on *J. humile* in Afghanistan.
Septoria jasmini Roum. Circular, then confluent, brown leaf spots, becoming white with brown margins, on *Jasminum* sp. in France.
Septoria sambac Pass. Subcircular whitish leaf spots on *J. sambac* in Italy.
Uromyces comedens Syd. Yellow to dark-brown rust pustules on leaves of *J. pubescens* in India.
Uromyces hobsoni Vize. Brown rust pustules on leaves, stems, and flower stalks of *J. floribundum, J. grandiflorum,* and *Jasminum* sp. in India, Somali, and Abyssinia.
JATROPHA. PHYSIC NUT. Tropical trees and shrubs with milky juice.
Cercospora ajrekari Syd. Circular yellow-brown leaf spots on *J. nana* in India.
Cercospora jatropharum Speg. Definite circular leaf spots, concentrically zoned, on *J. macrocarpa* in Argentina.
Cercosporella peronosporioides Speg. Dull-yellow indefinite leaf spots on *J. anisophylla* and *J. macrocarpa* in Argentina.
Cercosporina jatrophicola Speg. Subcircular to angular ashen-colored leaf spots with dull-brown margins on *J. macrocarpa* in Argentina.
Uredo jatrophicola Arth. Brown rust pustules on leaves of *J. curcas* and *J. gossypifolia* in Porto Rico, Cuba, and Dominican Republic.
Uromyces jatrophae Diet. and Holw. Powdery cinnamon to chestnut-brown rust pustules on leaves of *J. multifida* in Mexico.
Uromyces jatrophicola P. Henn. Powdery yellow to black rust pustules on leaves of *Jatropha* sp. in Brazil.
JEFFERSONIA. TWINLEAF. Attractive, hardy perennial herbs.
Triphragmiopsis jeffersoniae Naoumoff. Rust on leaf blades and petioles of *J. dubia* in Russia.
JOANNESIA. Tropical trees with milky juice, useful for medicinal, ornamental, and timber purposes.
Puccinia joannesiae P. Henn. Pale-brown to chestnut-brown rust pustules on leaves of *J. brasiliensis* in Brazil.
Uredo maceiensis P. Henn. Brown rust pustules on irregular dull-brown leaf spots and on stems of *J. princeps* in Central America.
JUBAEA. PALM. See Palmae.
JUGLANS. WALNUT. Butternut. Nut and timber trees.
Ascochyta juglandis Bolts. Subcircular gray-brown leaf spots, the centers of which fall out. On *J. regia* in Switzerland, Yugoslavia, and Austria.
Gummosis. A gumming disease of walnut (*Juglans* spp.) trunks and branches has been reported from France and other parts of Europe. Several distinct diseases are probably included, some due to nonparasitic causes, others possibly to bacteria or fungi not present in the United States.
Helicobasidium tanakae Miy. See Morus.
Hypoderma roseum (Pers.) Fr. See Populus.
Marsonia manshurica Naoum. Numerous sub-circular ashen-white leaf spots on *J. manshurica* in Russia.
Mycosphaerella saccardoana Jaap. On old leaves of *J. regia* in Dalmatia.
Phyllosticta juglandina Sacc. Indefinite whitish leaf spots with dull-brown borders on *J. regia* in Italy and Portugal.
Phyllosticta juglandis (DC.) Sacc. Indefinite whitish leaf spots on *J. regia* in Russia, Italy France, and Austria.
Septoria epicarpii Thuem. On epicarp of nuts of *J. regia* in Europe.
Septoria tetendreana Sacc. On leaves of *J. regia* in France.
Septoria nigromaculans Thuem. On epicarp of nuts of *J. regia* in Austria.
JUNCOIDES. See Luzula.
JUNIPERUS. JUNIPER. Redcedar. Coniferous ornamentals and timber trees.
Asteridium juniperinum Cke. On needles of *Juniperus* sp. in Great Britain.
Clasterosporium glomerulosum Sacc. On leaves of *J. communis* in Germany.
Gymnosporangium amelanchieris (DC.) Ed. Fisch. The necial stage of this rust forms small galls on the lower leaf surfaces of *Amelanchier ovalis*. The telia stage occurs in indefinite swollen areas along the branches of *J. communis* and *J. nana* in Europe.
Gymnosporangium koreaense (P. Henn.) Jacks. The necial stage occurs on leaves of *Cydonia japonica, C. oblonga,* and *Pyrus sinensis,* the telia on *J. chinensis* in Japan and Chosen. This rust has been introduced with nursery stock into Oregon and Connecticut.
Gymnosporangium nelsonii (DC.) Kern. Aecia on leaves and stems of *Cotoneaster tomentosa, C. vulgaris, Crataegus grandiflora, C. laciniata, C. monogyna, C. orientalis, C. oxyacantha, C. pinnatifida, C. tanacetifolia, Cydonia oblonga, Mespilus germanica,* and *Pyrus communis.* Telia dark chestnut-brown on fusiform enlargements on branches of *J. oxycedrus, J. phoenica, J. sabina,* and *J. virginiana* in Europe and Asia.

JUNIPERUS—Continued.

Gymnosporangium phothniae (P. Henn.) Kern. The aecia occur on thickened discolored spots on the lower leaf surfaces of *Pourthiaea villosa*. The telia occur on fusiform enlargements on the branches of *J. chinensis* in Japan and Chosen. Reported from Connecticut on imported stock.

Gymnosporangium sabinae (Dicks.) Wint. This rust produces swellings on the twigs, deformed fruit, and leaf spots on which the aecia occur. The aecial hosts are *Pyrus betulaefolia*, *P. communis*, *P. eleagnifolia*, *P. michauxii*, *P. nivalis*, *P. salicifolia*, and *P. tomentosa*. The dark-brown telia occur on swellings on twigs and branches of *Juniperus chinensis*, *J. japonica*, *J. oxycedrus*, *J. phoenica*, *J. sabina*, *J. sphaerica*, *J. tripartita*, and *J. virginiana* in Europe.

Gymnosporangium torminali-juniperinum Ed. Fisch. Aecia in small groups on brown leaf spots on *Sorbus latifolia* and telia on *J. communis* in Europe.

Gymnosporangium yamadae Miy. Aecia on leaves of *Malus* sp. (apple), *M. spectabilis* and *M. toringa* and the telia on *J. chinensis* in China and Japan.

Herpotrichia mucilaginosa Start. and Grev. On needles of *J. communis* in Sweden.

Sarcosoma thwaitesii (B. and Br.) Petch. Produces witches'-brooms on the stems and main branches of *J. bermudiana* in Ceylon.

Stemphylium juniperinum Karst. Kills the needles of *Juniperus* sp. in Finland.

Venturia furcata Fautr. On leaves of *J. sabina* in France.

JUSSIAEA. PRIMROSE WILLOW. Herbs.

Puccinia jussiaeae Speg. Cinnamon-brown rust pustules on leaves of *J. lanceolata* and *J. longifolia* in Argentina and Uruguay.

Puccinia sphaeroidea P. Henn. Brown rust pustules on stems and leaves of *Jussiaea* sp. in Japan.

Septoria obsidionis Speg. Small circular, often confluent, white leaf spots with broad purple borders on *J. longifolia* in Argentina.

Septoria platensis Speg. Small definite white leaf spots with purple margins on *J. longifolia* in Argentina.

Septoria thomasiana Sacc. Subcircular light-buff leaf spots with brown-purple margins on *J. acuminata* in the Portuguese Island of St. Thomas.

JUSTICIA. Herbs cultivated for their showy flowers.

Aecidium acanthacearum Cke. Rust on leaves of *J. procumbens* and *J. uncinulata* in Ceylon and Uganda.

Peronospora wildemaniana P. Henn. and var. **macrospora** K. Saw. Downy mildew attacking the leaves of *J. procumbens* in Japan and India, causing irregular light yellowish-green to white spots, which finally occupy the entire leaf area.

Puccinia fuhrmanni Mayor. Rust on leaves of *J. secunda* in Colombia.

Puccinia peraffinis Syd. Brown rust pustules on yellow-brown circular leaf spots on *J. diffusa* in India.

Puccinia shiraiana Syd. Dark-brown rust pustules on leaves and stems of *J. procumbens* in Japan and Ceylon.

Puccinia thwaitesii Berk. Dark-brown rust pustules on large sunken brown leaf spots on *J. gendarussa* in Ceylon, Indo-China, Java, Sumatra, Celebes, Malaya, New Guinea, and the Philippines.

Uromyces kwangensis P. Henn. Brown rust pustules on leaves of *Justicia* sp. in the Congo.

Ustilago thwaitesii Berk. A doubtful smut species reported on *J. gendarussa* in Malaya.

KADSURA. Tropical Asian woody climbers.

Septoria kadsurae Tassi. On leaves of *K. japonica* in Italy.

KAGENECKIA. Small evergreen trees from South America.

Phyllachora negeriana P. Henn. and Lind. Shiny black stromata on leaves of *K. oblonga* in Chile.

KENNEDIA. Woody trailers or twiners. See also Hardenbergia.

Cercospora kennedyae Cke. and Mass. Irregular and confluent cinnamon-brown leaf spots on *K. prostrata* in Australia.

Phyllosticta kennedyae Wint. Irregular, often confluent, dull-brown, then whitish, leaf spots on *K. ovata* in Portugal.

Septoria kennedyae Trav. and Spessa. On leaves of *Kennedia* sp. in Portugal.

KENTIA. See Palmae.

KERRIA. Shrubs.

Helicobasidium tanakae Miy. See Morus.

Phomopsis striaeformis Grove. On stems of *K. japonica* in Algeria.

Septoria kerriae Syd. Circular, pale-brown leaf spots on *K. japonica* in Japan.

KIGELIA. KIGELKEIA Ag. Ornamental African trees.

Leptosphaeria dryadea Sacc. On *K. pinnata* in the Philippines.

Phyllosticta kigelia Died. On leaves of *K. pinnata* in the Philippines.

KIGELKEIA. See Kigelia.

KOCHIA. SUMMER CYPRESS. MOCK CYPRESS. Herbs.

Puccinia kockiae Mass. Golden-brown to dark-brown rust pustules on leaves of *K. sedifolia*, *K. villosa*, and *Enchylaena tomentosa* in Australia.

Uromyces kochiae Syd. Rust on leaves of *K. prostrata* in Russia.

KOELREUTERIA. GOLDEN-RAIN TREE. Ornamental trees grown for their panicles of yellow flowers and handsome foliage.

Phyllosticta koelreuteriae Höll. Oblong ashen leaf spots with brown borders on *K. paniculata* in Hungary.

Triphragmium koelreuteriae Syd. Leaf rust on *K. paniculata* in Japan.

Uncinula koelreuteriae Miy. Powdery mildew on leaves of *K. bipinnata* in China.

KRAUNHIA. See Wistaria.

LABURNUM. GOLDEN CHAIN. Ornamental trees or shrubs, grown for their showy racemes of yellow flowers. See also Cytisus.

Microsphaera guarinonii Br. and Cav. Powdery mildew on leaves of *L. anagyroides* (*L. vulgare*) in Italy.

Peronospora cytisi Magn. See Cytisus.

Septoria cytisi Desm. Numerous subcircular whitish to brown leaf spots on *L. anagyroides* in Italy, France, and Hungary.

Stereum purpureum Pers. See Prunus.

Uromyces genistae-tinctoriae (Pers.) Fckl. See Caragana.

LACTUCA. LETTUCE. Hardy annual or perennial herbs, several species grown as vegetables; others weedy.

Ascochyta lactucae Rostr. On leaves and stems of *L. sativa* in Denmark.

Cercospora lactucae P. Henn. Dark areas on leaves of *L. raddeana* in Japan.

Cercospora longissima Trav. (*C. lactucae* Stevenson) (*C. lactucae* Welles). Circular to angular, often confluent, whitish leaf spots with rufous or brown margins on *L. sativa* in Italy, Brazil, Porto Rico, Cuba, China, and the Philippines.

LACTUCA—Continued.
Puccinia lactucae Diet. Brown rust pustules on leaves of *L. albiflora*, *L. brevirostris*, *L. denticulata*, *L. laciniata*, *L. raddeana*, *L. squarrosa*, and *L. thunbergiana* in Japan.
Puccinia lactucae-debilis Diet. Dull-brown powdery rust pustule on leaves of *L. debilis* and *L. stolonifera* in Japan.
Puccinia lactucae-denticulatae Diet. Powdery cinnamon-brown to chestnut-brown rust pustules on leaves of *L. denticulata* and *L. stolonifera* in Japan.
Puccinia lactucae-repentis Miy. Rust on leaves of *L. repens* in Japan.
Puccinia lactucina Syd. Yellow-brown to brown rust pustules on leaves of *L. scarioloides* in Persia.
Puccinia lactucarum Syd. Brown rust pustules on leaves and stems of *L. altissima*, *L. perennis*, *L. quercina*, *L. sagittata*, and *L. scariola* in Europe.
Puccinia prenanthis (Pers.) Lindr. Orange aecia and brown uredinia and telia on leaf blades and petioles of *L. muralis*, *L. sativa*, *L. stricta*, *L. virosa*, and *Prenanthes* spp. in Alaska, Europe, and Australia.
Ramularia lactucae Jaap. On leaves of *L. muralis* in Yugoslavia.
Ramularia lactucosa Lamb. and Fautr. Numerous small circular leaf spots on *L. sativa* in France.
Ramularia lampsanae (Desm.) Sacc. var. **lactucae-muralis** Jaap. Leaf spots on *L. muralis* in Germany.
Septoria fernandezii Unam. On leaves of *L. virosa* in Spain.
Uredo proximella Arth. Brown rust pustules on leaves of *L. intybacea* in Porto Rico, Cuba, and Dominican Republic.
LAELIA. Epiphytic orchids. See Orchidaceae.
LAGENARIA. GOURD. Cucurbitaceous vines.
Phyllosticta lagenariae Pass. On leaves of *L. leucantha* (*L. vulgaris*) in Italy.
Phyllostictiella cucurbitacearum Tass. On leaves of *L. leucantha* (*L. vulgaris*) in Italy.
LAGENOPHORA. Small perennial scapose herbs.
Puccinia lagenophorae Cke. Brown rust pustules on leaves of *L. billardieri* in Australia.
Septoria lagenophorae McAlp. Circular to irregular ashen to dull-brown leaf spots on *L. billardieri* in Australia.
Thecaphora lagenophorae McAlp. Smut sori developing in the ovaries, converting entire flower heads into powdery, brown spore masses. On *L. emphysopus* in Australia.
LAGERSTROEMIA. CRAPE MYRTLE. Showy-flowered shrubs and trees.
Cercospora lagerstroemiae Syd. Circular to irregular gray-brown to white leaf spots on *L. speciosa* in the Philippines.
Mollisia ravida Syd. Effuse, pale, indefinite leaf spots on *L. speciosa* in the Philippines.
Rhytisma lagerstroemiae Rabh. Irregular black stromata on leaves of *L. indica*, *L. lanceolata*, and *L. speciosa* in India and the Philippines.
Septoria lagerstroemia Sacc. and Scalia. Brown leaf spots on *L. indica* in Portugal.
Uncinula australiana McAlp. Powdery mildew on leaves and inflorescences of *L. indica* and *L. ovalifolia* in Japan and Australia.
LAGURUS. RABBIT TAIL GRASS. Hardy annual grasses.
Puccinia laguri Jaap. Rust on leaves of *L. ovatus* in Dalmatia.
Septoria caruaniana Sacc. Oblong pale ochraceous spots on leaves of *L. ovatus* in Malta.
LAMIUM. DEAD NETTLE. Annual and perennial herbs, some species cultivated as hardy border plants.
Ascochyta lamiorum Sacc. Ochraceous leaf spots on *L. album* in Italy.
Ovularia lamii (Fckl.) Sacc. On leaves of *L. album*, *L. amplexicaule*, and *L. purpureum* in Russia and Denmark.
Peronospora lamii A. Braun. Broadly effused dingy lilac, downy mildew patches on under leaf surfaces of *L. album*, *L. amplexicaule*, *L. maculatum*, *L. purpureum*, and *L. rubrum* in Europe and Tunis. Reported from New York.
Phyllosticta albanica Bub. Circular to irregular gray leaf spots with brown margins on *L. galeobdolon* in Yugoslavia.
Phyllosticta lamii Sacc. Whitish leaf spots with broad ochraceous surrounding zones on *L. album* and *L. ovata* in Siberia and Italy.
Phyllosticta venziana Mart. Small circular gray leaf spots on *Lamium* sp. in Italy.
Ramularia exilis Syd. Indefinite yellowish leaf spots on *L. galeobdolon* in Denmark and Germany.
Ramularia lamiicola C. Mass. Angular, then confluent, leaf spots on *L. album* in Europe.
Septoria diedickei Sacc. Circular to irregular, then confluent, white leaf spots with brown or dark-purple margins on *L. galeobdolon* in Denmark and Germany.
Septoria lamiicola Sacc. and var. **intermedia** C. Mass. Whitish leaf spots with red margins on *L. album*, *L. amplexicaule*, *L. bithynicum*, *L. maculatum*, *L. orvala*, and *L. purpureum* in Europe.
LANDOLPHIA. PACURIA. Ag. Tropical shrubs mostly climbers.
Colletotrichum paucipilum Delacr. Brown anthracnose spots, often marginal, on leaves of *L. kleinii* in France and the Congo.
Phyllosticta landolphiae P. Henn. Marginal brown leaf spots on *L. kirkii* in Germany.
Phyllosticta owariensis Maubl. Small irregular whitish leaf spots with brown borders on *L. owariensis* in central Africa.
LANSIUM. LANSA. Oriental trees, one species cultivated for its edible fruit.
Bacterium citri Hasse. See Citrus.
Corticium salmonicolor B. and Br. See Citrus.
LANTANA. Shrubs, some species cultivated for the verbena-like flowers.
Acanthostigma lantanae Theiss. On leaves of *Lantana* sp. in Brazil.
Aecidium lantanae Mayor. Rust on leaves of *L. hispida* in Colombia.
Phyllachora sororcula Speg. Shiny black stromata on leaves of *Lantana* sp. in Paraguay and Brazil.
Phyllosticta lantanae Pass. Small irregular whitish leaf spots on *L. camara* and *Viburnum lantana* in Porto Rico and Italy.
Prospodium tuberculatum (Speg.) Arth. Powdery cinnamon-brown to black rust pustules on leaves of *L. camara*, *L. horrida*, *L. involucrata*, *L. lilacina*, *L. robusta*, *L. salvifolia*, and *L. trifolia* in Mexico, South and Central America, and Cuba.
Puccinia natalensis Diet. and Syd. Dark-brown rust pustules on leaves of *L. salvifolia* and *L. trifolia* in Uganda and the Union of South Africa.
Puccinia schimperiana Syd. Rust on leaves of *L. citrifolia* in Abyssinia.
Septoria lantanae Gar. Small, irregular leaf spots on *L. camara* in Porto Rico.
Uromyces dubiosus P. Henn. Dark-brown powdery rust pustules on leaves of *Lantana* sp. in Brazil.
LAPAGERIA. CHILE BELLS. Half-hardy evergreen twiner.
Phyllosticta jaffuelli Speg. On leaves of *L. rosea* in Chile.

LAPEYROUSIA. African summer-flowering bulbs.

Uromyces anomathecae Cke. Brown elliptical rust pustules on both leaf surfaces of *L. cruenta* in Natal.

Uromyces delagoënsis Bub. Round to oblong golden-yellow to black rust pustules on both surfaces of leaves of *L. delagoënsis* in Mozambique and Portuguese East Africa.

LAPORTEA. Perennial herbs, shrubs or trees.

Aecidium laporteae P. Henn. Rust pustules on circular yellow-brown leaf spots on *L. bulbifera* in Japan.

LARDIZABALA. Evergreen climbers of Chile.

Physalospora lardizabalae Speg. On leaves of *L. biternata* in Chile.

Septoria lardizabalae P. Henn. Effuse brown leaf spots on *L. biternata* in Germany.

LARIX. Larch. Tamarack. Timber and ornamental trees.

Cercospora exosporioides Bub. On needles of *L. decidua* (*L. europaea*) in Bohemia.

Dasyscypha calycina (Schum.) Fckl. (*D. willkommii* Hartig.) This fungus causes the most serious disease of the larch known and is widespread throughout Europe. It has also been reported from Newfoundland, and there is grave danger of the introduction of the parasitic strain of the fungus into the United States. The fungus occurs commonly on dead branches, the fruiting bodies appearing as small orange or yellow cups. It attacks living parts of the tree through wounds, and develops large, perennial cankers. The bark becomes black, resin oozes out and a flattened cavity forms, which increases year by year. Young trees may be girdled and killed, older trees persist often for years, but their merchantable value is lowered or destroyed, particularly when several or more cankers occur along the trunk. The hosts are *L. decidua*, *L. occidentalis*, *Abies pectinata*, *Pinus austriaca*, *P. laricio*, *P. pumilo*, and *P. sylvestris*.

Exosporina laricis Oud. Very injurious to leaves of *Larix* sp. in Holland.

Hartigiella laricis (Hart.) Syd. (*Meria laricis* Vuill.) Brown spots on needles, particularly those on young shoots of *Larix* sp. in Russia, France, and Germany. Leaf fall results, and often the death of young trees.

Heterosporium laricis Cke. and Mass. On leaves of *L. decidua* in Great Britain.

Hypodermella laricis Tub. On needles of *L. decidua* in Switzerland and Germany, causing a dwarfing of shoots and dying of foliage.

Melampsora larici-capraearum Kleb. See Salix.

Melampsora larici-epitea Kleb. See Salix.

Melampsora larici-pentandrae Kleb. See Salix.

Melampsora larici-populina Kleb. See Populus.

Melampsora laricis R. Hart. See Populus.

Melampsora larici-urbaniana Mat. See Salix.

Melampsoridium betulae (Schum.) Arth. This rust attacks the needles of *L. europaea* in Europe, Siberia, and Japan. The alternate stages occur on *Betula* spp. and have been reported from the United States.

Mycosphaerella laricina R. Hartig. Brown patches on needles of *L. decidua* in Germany, causing premature leaf fall.

Myxosporium abietinum Rostr. On bark of *L. decidua*, *Picea sitchensis*, *Pinus strobus*, and *Pseudotsuga taxifolia* in Denmark.

Phoma laricis Oud. On leaves of *L. decidua* in Denmark.

Phoma lineolata Desm. On branches and cone scales of *L. decidua* in Europe.

Phomopsis pseudotsugae Wils. See Pseudotsuga.

Phyllosticta lineolata Desm. On *L. decidua* in Germany.

Phytophthora fagi R. Hart. See Fagus.

LASIA. Perennial herbs, woody at the base.

Mycosphaerella lasiana Sacc. On leaves of *L. heterophylla* in Malaya.

LATANIA. Palm. See Palmae.

LATHYRUS. (Including *Orobus*). Pea. Sweet pea. Annual and perennial climbing or upright herbs and shrubs.

Ascochyta lathyri Trail. and var. **lathyri-odorati** Bub. and Kab. Large brown areas on leaves of *L. annuus*, *L. nissolia*, *L. odoratus*, and *L. sylvestris* in Scotland, Denmark, Bohemia, Italy, and Spain.

Ascochyta orobi Sacc. Irregular whitish leaf spots with dull-brown margins on *L. niger*, *L.* (*Orobus*) *vernus*, *Orobus lathyroides*, and *O. vernus* in Siberia, Russia, Italy, and Austria.

Cladosporium album Dowson. Irregular sunken faint-buff spots on both leaf surfaces and wings of stems of *L. odoratus* in Great Britain.

Cylindrosporium lathyri Bub. and Kab. Irregularly circular to angular ochraceous leaf spots with brown-purple margins on *L. vernus* in Italy and Austria.

Cylindrosporium orobicolum (Sacc.) Bub. Large indefinite brown-margined leaf spots on *L. variegatus*, *Orobus venetus*, and *O. vernus* in Russia, Bohemia, and Italy.

Entyloma feurichii Krieg. Smut sori in confluent brown leaf spots on *L. sylvestris* in Germany.

Glocosporium orobi Karst. Irregular dull-brown leaf spots on *Orobus vernus* in Finland.

Isariopsis carnea Oud. Leaf spot on *L. pratensis* in Italy and Holland.

Mycosphaerella lathyri A. Pot. Indefinite irregular ochraceous leaf spots on *L. pisiformis* in Siberia and Russia.

Ovularia deusta (Fckl.) Sacc. Large dark-brown areas on leaves of *L. pratensis*, *L. tuberosus*, and *Tetragonolobus siliquosus* in Siberia, Sweden, Italy, France, and Germany.

Peronospora fulva Syd. Downy mildew on leaves of *L. pratensis* and *L. vernus* in central and northern Europe.

Peronospora lathyri palustris Gäum. Downy mildew on leaves of *L. heterophyllus*, *L. palustris*, and *L. sativus* in Sweden, Switzerland, and India.

Peronospora orobi Gäum. Downy mildew on leaves of *L. montanus* and *L. tuberosus* in central and northern Europe.

Peronospora senneniana Sacc. Downy mildew on leaves of *L. nigrus* in Spain, Switzerland, Bohemia, Denmark, Norway, Austria, Poland, and Germany.

Phyllachora lathyri (Lév.) Theiss. and Syd. Black, crust-like stromata on both leaf surfaces of *L. grandiflorus*, *L. latifolius*, *L. pratensis*, *L. tuberosus*, *Onobrychis sativa*, *O. viciaefolia*, and *Vicia tenuifolia* in Siberia, Russia, Asia Minor, and Austria.

Phyllosticta lathyricola Bub. and Krieg. Small circular to irregular dull purple-brown leaf spots on *L. sylvestris* in Germany.

Phyllosticta lathyrina Sacc. and Wint. Pale ochraceous leaf spots with brown margins on leaves of *L. sylvestris* in Russia, Italy, and Switzerland.

Phyllosticta orobella Sacc. On leaves of *L. vernus* in Russia and Italy.

Physalospora lathyri (D. and M.) Sacc. On leaves of *L. amphicarpus* in Algeria.

Placosphaeria onobrychidis Sacc. See Lupinus.

Ramularia lathyri Höll. Oblong yellowish leaf spots on *L. hirsutus* in Hungary.

LATHYRUS—Continued.
Rhizoctonia napi West. See Brassica.
Rhytisma onobrychis Sacc. See Lupinus.
Septogloeum lathyri Lind. Large confluent pale-reddish leaf spots on leaves of *L. sylvestris* in Denmark.
Septoria fatreyana Sacc. On leaves of *L. sylvestris* in Italy.
Septoria fulvescens Sacc. Brown confluent leaf spots on *L. maritimus*, *L. pisiformis* and *L. sylvestris* in Russia, Bohemia, Italy, and Germany.
Septoria podgoricensis Bub. Circular to elliptical yellowish spots on leaves and stems of *L. angulatus* and *L. annuus* in Spain and Yugoslavia.
Septoria silvestris Pass. Leaf spots on *L. pratensis*, *L. sylvestris*, *L. tuberosus* and *Vicia sepium* in Sweden, Russia, Denmark, and Italy.
Septoria stipularis Pass. See Lotus.
Uromyces clavatus Diet. Yellow and cinnamon-brown rust pustules on leaves of *L. magellanicus*, *L. multiceps*, and *Vicia tenuifolia* in Chile, Argentina, and Brazil.
Uromyces lathyrinus Speg. Yellow and dark-brown rust pustules on leaves and stems of *L. clymenum* in Argentina.
Uromyces orobi (Pers.) Lév. Brown rust pustules on *L. cicera*, *L. latifolius*, *L. montanus*, *Orobus tuberosus*, and *Vicia unijuga* in Siberia and Europe.
Uromyces pisi (Pers.) De By. See Pisum.

LAURUS. Laurel. Sweet bay. Trees.
Ascochyta laurina Tass. Marginal white leaf spots with rufous margins on *L. mollis* in Italy.
Cercospora unicolor Sacc. and Penz. On leaves of *L. nobilis* in France.
Exobasidium lauri Geyl. Long sulcate excrescences on trunks of *L. canariensis* and *L. nobilis* in Portugal, Italy, Brazil, and the Canary Islands.
Gloeosporium nobile Sacc. Circular dull-yellowish anthracnose spots on leaves of *L. nobilis* in Italy and Austria.
Metasphaeria nobilis Sacc. Whitish leaf spots with dull-brown margins on *L. nobilis* in Italy and Portugal.
Phragnonaevia lauri Pat. Circular, then confluent, rufous to whitish leaf spots with brown margins on *L. nobilis* in Tunis.
Phyllosticta allantella Sacc. On leaves of *L. nobilis* in Spain and France.
Phyllosticta laurina d'Alm. Irregular dull-brown leaf spots with darker borders on *L. nobilis* in Portugal.

LAVANDULA. Lavender. Perennial herbs, subshrubs, and shrubs.
Phoma lavandulae Brierley. Diseased buds and shoots turn brown, the leaves wither and fall and the epidermis of the twigs splits away in shreds. On *L. spica* (*L. officinalis*) in Great Britain.
Septoria lavandulae Desm. Circular to irregular white leaf spots with raised purple margins on *L. spica*, and *L. stoechas* in Great Britain, France, Italy, Denmark, and Madeira.

LAVATERA. Treemallow. Annual and perennial flower-garden herbs and some ornamental shrubs.
Ramularia daniloi Bule. Angular yellowish leaf spots becoming white on *L. rotundata* and *L. thuringiaca* in Spain and Montenegro.

LEDUM. Labrador tea. Shrubs cultivated for their white flowers and evergreen foliage.
Ascochyta ledicola Oud. On leaves of *L. palustre* in Holland.
Coccomyces ledi Rehm. On living branches of *L. palustre* in Sweden.
Phyllosticta ledi Rostr. White to gray leaf spots with purple borders on *L. groenlandicum* in Greenland.
Sclerotinia heteroica Wor. A heteroecious species, one stage attacking the flowers and ovaries of *L. palustre*, the other shoots of *Vaccinium uliginosum* in Finland, Sweden, Russia, and Germany.

LENS. Lentil. Herbs.
Peronospora lentis Gäum. Downy mildew on leaves of *L. esculenta* in Germany.
Rhizoctonia napi West. See Brassica.
Uredo lentis Lagerh. Dark brown, elongate rust sori on leaves and stems of *L. esculenta* in Ecuador.
Uromyces vicine-craccae Const. See Vicia.

LEONOTIS. Lion's-ear. Shrubs cultivated for their scarlet or orange flowers.
Aecidium leonotidis P. Henn. Rust on leaves of *L. velutina* in central Africa.
Puccinia leonotidicola P. Henn. Brown rust pustules on leaves of *L. nepetifolia* in Porto Rico, Cuba, Bahamas, Jamaica, central and southern Africa.
Uredo cancerina P. Henn. A rust producing large cancerous swellings on the stems, which break irregularly and finally become woody. On *L. velutina* in Abyssinia.
Uredo leonoticola P. Henn. Rust on leaves of *Leonotis* sp. in Brazil.

LEONTODON. See Taraxacum.

LEONTOPODIUM. Edelweiss. Perennial herbs.
Puccinia leontopodii Vogl. Rust on leaves of *L. alpinum* in Switzerland.

LEPIDAGATHIS. Tropical herbs and shrubs.
Aecidium lepidadathis Syd. Rust on brown leaf spots on *L. hyalina* in India.

LEPTODERMIS. Low shrubs with small white or purple flowers.
Coleosporium leptodermidis (Barcl.) Syd. Golden rust pustules on leaves of *L. lanceolata* in India.

LEPTOSPERMUM. AGONIS Ag. Ornamental woody plants grown for their flowers and myrtlelike foliage.
Phyllachora callistemoni Rodw. Tar spot on leaves of *P. scoparium* in Tasmania.

LESCHENAULTIA. Herbs and heathlike Australian plants.
Puccinia gilgiana P. Henn. Yellow and brown to black rust pustules on petioles, stems, and calyces of *L. linarioides* in Australia.

LESPEDEZA. Bush clover. Forage plants.
Uromyces rugulosus Pat. Black rust pustules on leaves of *L. yunnanensis* in China.
Woroninella vulcanica Wor. On *L. cyttoidis* in Java.

LEUCADENDRON. Silver tree. Shrubs or trees, the leaves densely covered with white silky hairs.
Cercospora protearum Cke. Circular dark-brown leaf spots on *L. argenteum* in the Union of South Africa.

LEUCAENA. Shrubs with Acacialike foliage.
Exosporium leucaenae Stev. and Dal. Circular dull-yellow leaf spots on *L. glauca* in Porto Rico.
Ravenelia leucaenae Long. Brown powdery rust sori on leaves of *L. diversifolia* and *L. esculenta* in Mexico.
Ravenelia leucaenae-microphyllae Diet. Brown rust pustules on leaves of *L. angustissima* and *L. microphylla* in Mexico and Guatemala.
Ravenelia verrucosa Cke. and Ell. Yellow-brown to brown rust pustules on leaves of *L. lanceolata* in Mexico.

LEUCANTHEMUM. See Chrysanthemum.

LEUCOJUM. SNOWFLAKE. Hardy bulbous plants.

Puccinia schmidtiana Diet. See Phalaris.

Ramularia ucrainica Petr. Brown to gray-brown leaf spots on *L. vernum* in southeastern Europe.

Septoria malisorica Bub. Elongate (up to 3 centimeters) gray-purple leaf spots with brown margins on *L. aestivum* in Yugoslavia.

LEUCOTHOE. Ornamental shrubs grown for their handsome evergreen leaves and white flowers.

Coniothyrium leucothoës P. Henn. Circular, then confluent, whitish leaf spots with brown margins on *Leucothoë* sp. in Brazil.

Exobasidium leucothoës P. Henn. Deforms leaves and branches of *Leucothoë* sp. in Brazil.

Rhytisma leucothoës P. Henn. Black stromata on leaves of *Leucothoë* sp. in Brazil.

LEUZEA. See Centaurea.

LEVISTICUM. LOVAGE. Perennials grown for their aromatic seed.

Bacterium levistici Osterw. Small, somewhat sunken, brown spots which are confluent, forming large irregular areas with yellow margins. On leaf blades and petioles and stems of *L. officinale* in Germany.

Puccinia bornmülleri P. Magn. Powdery dark-brown rust pustules on leaf blades and petioles and stems of *L. persicum* in Persia.

Ramularia levistici Oud. Leaf spots on *L. officinale* in Holland.

Ramularia schroeteri P. Syd. Subcircular ochraceous leaf spots with whitish margins on *L. officinale* in Yugoslavia and Austria.

Ramularia vestergreniana Allesch. Large brown marginal leaf spots on *L. officinale* in Russia and Finland.

Septoria levistici West. Circular to irregular broad brown, then whitish, leaf spots on *L. officinale* in Belgium and Spain.

LEYCESTERIA. HIMALAYA HONEYSUCKLE. Small Chinese shrubs with small flowers in whorls.

Septoria leycesteriae Sacc. and Speg. Subcircular to irregular ochraceous leaf spots with brown borders on *L. formosa* in Italy and Germany.

LICUALA. Dwarf fan palms. See Palmae.

LIGHTFOOTIA. African shrubs or herbs with small white, blue, or pink flowers.

Uredo campanularum Cke. and Mass. Rust on leaves of *Lightfootia* sp. in Madagascar.

LIGULARIA. Perennial herbs.

Aecidium nikkense P. Henn. and Shir. Yellow rust pustules on leaves of *L. stenocephala* in Japan.

Coleosporium ligulariae Thuem. Golden rust pustules on leaves of *L. sibirica* in Russia, Finland, Siberia, and Denmark.

Puccinia paulsenii Syd. Brown leaf rust on *L. altaica* in central Asia.

LIGUSTICUM. Hardy herbs used for naturalizing.

Puccinia aphanicondra Lindr. Powdery dark-brown rust pustules on *L. alatum* in Armenia.

Puccinia ligusticicola S. Miy. Brown to black rust pustules on leaf blades and petioles of *L. acutilobum*, *L. ibukiensis*, and *L. scoticum* in Japan.

LIGUSTRUM. PRIVET. Ornamental woody plants cultivated for their handsome foliage and as hedge plants.

Aecidium klugkistianum Diet. Rust on leaves of *L. japonicum* in Japan.

Ascochyta ligustri Sacc. and Speg. (*Ascochytella ligustrina* [Pass.] Tass.) Dull-yellow leaf spots on *L. vulgare* in Italy and France.

Cercospora ligustri Roum. Numerous circular to irregular yellow leaf spots on *L. vulgare* in France.

Phyllosticta ligustri Sacc. Leaf spots on *L. vulgare* in Denmark, Italy, Portugal, and Austria.

Phyllosticta ligustrina Sacc. and Speg. Leaf spot on *L. vulgare* in France and Italy.

Phytophthora syringae Kleb. See Syringa.

Puccinia obtusata (Otth,) Ed. Fisch. See Phragmites.

Ramularia ligustrina Maubl. Circular to oval dull-yellow leaf spots with dark-brown margins on *Ligustrum* sp. in France.

Septoria japonica Thuem. On leaves of *L. japonicum* and *L. vulgare* in Italy and Germany.

Septoria ligustri (Desm.) Kicks. Pale ochraceous irregular leaf spots with reddish margins on *L. vulgare* in Belgium and France.

Septoria ligustrina Sacc. On leaves of *L. vulgare* in Bohemia.

LILIUM. LILY. Scaly bulbous plants with showy flowers.

Aecidium lilii-cordifolii Diet. Circular to irregular spots are produced on both leaf surfaces up to 1 centimeter in diameter, in which yellow rust pustules appear. On *L. cordifolium* in Japan.

Aecidium safianoffianum Thuem. Yellow rust pustules appear on leaves of *L. martagon* in Siberia.

Bacillus lilii Uyda. This bacterial disease attacks the leaves and bulb scales. The spots are deep brown in color, oval to elongate or more or less irregular on the bulb scales. The entire leaf blade soon becomes involved, turns brown, and droops. When young bulbs are attacked flowering shoots fail to develop. On *L. auratum*, *L. cordifolium*, *L. elegans*, *L. hansoni*, *L. longiflorum*, *L. maculoides*, *L. rowanii*, *L. speciosum*, *L. tigrinum*, and *L. venustum* in Japan.

Botrytis liliorum Fujikuro. This fungus attacks mostly the leaves, first appearing as small spots about 1 millimeter in diameter, rapidly spreading over the entire surface, causing total decay of the host plant. "As bad as any three other lily diseases in Japan." On *L. longiflorum* in Japan.

Cercosporella liliicola (Rich.) Sacc. On stems of *L. candidum* in France.

Cylindrosporium inconspicuum Wint. (*Cercosporella inconspicuus* [Wint.] v. Hoeh.) (*Cercosporella hungarica* Bacumc.) Causes irregular, often confluent, spots on the leaves which are dark-brown, becoming paler at the center. On *L. martagon* and other species in France, Switzerland, and Austria.

Mycosphaerella cinxia Sacc. (*Sphaeria maturina* Sacc.) Causes a leaf blight of *L. candidum* in Italy.

Phyllosticta liliicola Sacc. A leaf-spot disease of *L. candidum* in Italy.

Puccinia sp. Intercepted on *Lilium* sp. from Ecuador.

Rhizopus necans Mass. A wound parasite, causing a soft rot of the bulbs, particularly during shipment. On *L. auratum*, *L. lancifolium*, *L. speciosum*, and other species in Japan, Great Britain, and Denmark.

Uromyces accidiiformis (Strauss.) Rees. (*Uromyces lilii* Kunze.) This rust produces yellow-brown to chestnut-brown rust pustules on dead spots on leaves, petioles, and stems. On *L. bulbiferum*, *L. candidum*, *L. carniolicum*, and *L. croceum* throughout central Europe and on *Fritillaria involucrata* in France.

Uromyces holwayi Lagerh. Leaf rust on *L. dauricum* and *L. maximowiczii* in Japan.

Uromyces japonicus Syd. Cinnamon-colored powdery rust pustules, later becoming darker on the upper surfaces of leaves of *L. maximowiczii* and *L. tigrinum* in Japan.

Uromyces lilii (Lk.) Fekl. Brown rust pustules are produced in sunken spots on both surfaces of the leaves of *Fritillaria delphinensis*, *F. graeca*, *F. meleagris*, *F. messanensis*, *F. minor*, *F. ruthenica*, *Lilium auratum*, *L. bulbiferum*, *L. canadense*, *L. candidum*, *L. carniolicum*, and *L. croceum* in France, Switzerland, Italy, Yugoslavia, Russia, Montenegro, Spain, Japan, Austria, Hungary, Dalmatia, and Germany. Reported from Washington.

LINARIA. TOADFLAX. Low herbs.
Cintractia cingens (Berk.) De T. Smut sori on stems and leaves of *L. genistifolia* and *L. vulgaris* in Austria.
Peronospora flava Gäum. Downy mildew on leaves of *L. vulgaris* in central and north Europe.
Peronospora linariae Fckl. Downy mildew on leaves of *L. arvensis* and *L. minor* in central and north Europe.
Phyllosticta linariae Sacc. See Antirrhinum.
Puccinia trabuti Roum. and Sacc. See Phragmites.
Septoria cymbalariae Sacc. and Speg. Circular dull-brown leaf spots on *L. cymbalaria* and *L. nivea* in Italy, France, and Spain.
Septoria gandulphi Sacc. and D. Sacc. Small orbicular to angular leaf spots on *L. commutata* in Italy.
Septoria lapadensis Jaap. Yellow-brown leaf spots on *L. commutata* in Dalmatia.
Ustilago hypogaea Tul. Doubtful smut species on *L. spuria* in the Isle of Wight.

LINUM. FLAX. Fiber plant. Several species cultivated as ornamentals.
Ascochyta lini Rostr. On stems of *L. catharticum* in Denmark.
Cercosporella lini Wor. On leaves of *L. nervosum* in Russia.
Colletotrichum lini (Westerd.) Tochinal. (*C. linicolum* Pethybr. and Laff.) Irregular, shrunken, discolored cankers occur on seedlings of *L. usitatissimum*, involving the cotyledons and causing damping off. Similar dark rusty-brown areas occur on stems, leaves, calyces, buds, and capsules of older plants. The disease is carried in the seed. It has been reported from Ireland, Great Britain, Japan, and Formosa. It is not clear whether the flax anthracnose reported from the United States is identical.
Cylindrosporium melitense Sacc. On leaves and flowers of *L. strictum* in Italy.
Entyloma lini Oud. Smut sori on yellowish circular leaf spots on *L. usitatissimum* in Holland.
Fusicladium lini Sor. On leaves of *L. usitatissimum* in Belgium and Germany.
Olpidiaster radicis (Willd.) Pascher. (*Asterocystis radicis* Willd.) This fungus attacks the roots of *L. usitatissimum*, *Brassica* spp., *Plantago* spp., and *Veronica* spp. in Europe, Argentina, and Morocco, causing a yellowing and stunting of the plants.
Peronospora lini Schroet. Downy mildew on leaves of *L. cathcarticum* in Scandinavia, Finland, Russia, Austria, Switzerland, and Germany.
Phlyctaena linicola Speg. Yellowish areas on leaves and stems of *L. usitatissimum* in Argentina. Recently reported from several localities in the United States as a serious disease.
Phoma sp. On stems of *L. usitatissimum* in Ireland.
Pleosphaerulina lini Lebed. On leaves and stems of *L. perenne* in Russia.
Polyspora lini Pethybr. The browning or stem-break disease of flax (*L. usitatissimum*) is serious in Ireland and is a seed-borne disease. The cotyledons are first attacked, the disease spreading successively to leaves, stems, branches, and seed bolls. Stem lesions may cause half-grown plants to break over and die. On older plants numerous brown spots cover the various organs, diseased areas in a field taking on a brown appearance rather than the golden-yellow color produced by healthy plants. Stems develop a brittleness, indicating injury to the fiber. The disease also occurs in Great Britain.
Ramularia lini Lebed. On leaves and stems of *L. perenne* in Russia.
Rhizoctonia napi West. See Brassica.
Septogloeum linicola Speg. Pale effuse areas on leaves and stems of *L. usitatissimum* in Argentina.
Tylenchus dipsaci Kuehn. See Narcissus.
La brûlure or vlasbrand disease of flax is a widely distributed disease of flax (*L. usitatissimum*) in Belgium, France, and Ireland, due to an unknown cause.

LIPARIS. TWAYBLADE. Terrestrial and epiphytic orchids. See Orchidaceae.

LIPPIA. LEMON VERBENA. Herbs and shrubs grown for their ornamental flowers. One species used for ground cover or lawns.
Aecidium evansi P. Henn. Rust on leaves of *L. asperifolia* in the Union of South Africa.
Phyllosticta aloysiae Speg. Subcircular dull-brown leaf spots with white centers on *L. citriodora* in Argentina.
Prospodium lippiae (Speg.) Arth. Powdery golden-yellow rust pustules on *L. asperifolia*, *L. callicarpaefolia*, *L. dulcis*, *L. lycioides*, *L. myriocephala*, *L. strigosa*, and *L. umbellata* in Argentina, Mexico, Guatemala, Cuba, and Costa Rica.
Puccinia accedens Syd. Powdery brown rust pustules on leaves of *L. aristata* and *L. arvensis* in Brazil and Uganda.
Puccinia conjuncta Diet. and Holw. Brown rust pustules on leaf blades and petioles and on stems of *L. pringlei* in Mexico.
Puccinia elatipes Arth. and Holw. Rust on leaves of *L. myriocephala* in Costa Rica and Guatemala.
Puccinia lippiicola Pat. and Har. Brown rust pustules on circular brown spots on *L. adoensis* in central Africa.
Puccinia lippivora Syd. Rust on leaves of *Lippia* sp. in the Congo.
Puccinia paraguayensis Speg. Powdery cinnamon-brown rust pustules on *L. lycioides* in Brazil.
Puccinia permagna Arth. and Holw. Brown leaf rust on *L. myriocephala* in Costa Rica.
Puccinia peruviana Syd. Powdery dark-brown rust pustules on leaves of *L. urticoides* in Peru.
Puccinia senilis Arth. Yellow to brown powdery rust pustules on leaves of *L. myriocephala* in Guatemala.
Puccinia vonguntenі Mayor. Rust on leaves of *L. americana* in Colombia.
Uredo lippiae Diet. and Holw. Brown, powdery rust pustules on leaves of *L. pringlei* in Mexico.

LIRIODENDRON. TULIP TREE. YELLOW-POPLAR. Timber and ornamental trees.
Diaporthe delitescens Bomm., Rouss., and Sacc. On *L. tulipifera* in Belgium.
Mycosphaerella elatior Sacc. and Speg. See Magnolia.
Myxosporium tulipiferae Died. On twigs of *L. tulipifera* in Germany.

LISIANTHUS. Herbs or shrubs cultivated for their flowers.
Phyllosticta lisianthi Syd. Circular to subcircular, brown leaf spots with raised margins on *L. exsertus* in Jamaica.
Uredo lisianthi Pat. Rust on leaves of *L. elegans* in Brazil.

LISTERA. Terrestrial orchids. See Orchidaceae.

LITHOCARPUS. See Pasania.

LITHOSPERMUM. GROMWELL. Herbaceous, hardy perennials, used in rock gardens.
Aecidium lithospermi Thuem. Rust on leaves of *L. arvense* and *L. purpureocaeruleum* in Austria and Macedonia.
Peronospora lithospermi Gäum. Downy mildew on leaves of *L. arvense* in central and north Europe.
Puccinia arnaudi Har. and Diet. Rust on leaves, stems, and sepals of *L. fruticosum* in France.
Ramularia lithospermi Lebed. On leaves of *L. officinale* in Russia.

ITSEA. Trees or shrubs.
Asteroconium saccardoi Syd. Forms yellow galls on leaves of *L. glaucescens* in Mexico.
Cercospora litseae P. Henn. Circular dull-brown leaf spots on *L. glauca* in Japan.
Cercospora litseae-glutinosae Syd. On leaves of *L. glutinosa* in the Philippines.
Endodothella litseae Racib. Black shiny irregular to circular stromata on leaves of *L. javanica* in Java.
Gloeosporium litseae Petch. Anthracnose on *Litsea* sp. in Ceylon.
Helminthosporium maculosum Sacc. On *L. perrottetii* in the Philippines.
Laestadia litseae (B. and Br.) Cke. Small pale-brown leaf spots on *Litsea* sp. in Australia.
Oligostroma apiculatum (Sacc. and Berl.) Theiss. and Syd. Shiny black somewhat irregular stromata on leaves of *L. dealbata* in Australia.
Phyllachora cantonensis Syd. Black stromata on leaves of *L. glutinosa* in China.
Phyllachora laurinearum Rac. Circular to elliptical black stromata on yellow-green subcircular leaf spots on *L. chrysocoma* and *Tetranthera* sp. in Java.
Phyllachora lepida Syd. Black stromata on leaves of *L. tayabensis* in the Philippines.
Phyllachora litseae Koord. Black stromata on indefinite yellowish spots on *L. polyantha* in Java.
Puccinia litsea (Pat.) Diet. and P. Henn. Chestnut-brown rust pustules on leaves of *L. glauca* in Japan.
Teichosporella negeriana Sacc. and Syd. Black fungus layers on leaves of *L. caustica* in Chile.
Venturia litseae Syd. On leaves of *L. glutinosa* in the Philippines.
IVISTONA. Fan palms. See Palmae.
LOYDIA. Small bulbous plants.
Asteroma lloydiae Cruchet. Pale-brown, then darker, areas on stems and leaves of *L. serotina* in Switzerland.
Puccinia bessei Cruchet. Dull-brown rust pustules on leaves and stems of *L. serotina* in Switzerland.
LOASA. Flower-garden annuals.
Aecidium rehderianum Magn. Rust on leaves of *L. aurantiaca* and *L. papaverifolia* in Germany.
Septoria loasae F. Tassi. On leaves of *L. vulcanica* in Italy. Spegazzini has given the same name to a species on *Loasa* sp. in Argentina.
LOBELIA. Annual and perennial flower-garden and border plants.
Ascochyta lobeliae Petch. On *L. nicotianaefolia* in Ceylon.
Cercospora ochracea Sacc. and Malbr. On leaves of *L. urens* in France.
Cercospora (?) tupae Speg. Pale, indefinite spots on leaves of *L. tupa* in Chile.
Gloeosporium hawaiense Thuem. Anthracnose on leaves of *L. macrostachys* in Hawaii.
Heterosporium lobeliae Speg. Indefinite leaf spots on *L. suticifolia* in Chile.
Heterosporium tupae Speg. Indefinite leaf spots on *L. bridgesii* in Chile.
Mycosphaerella lobeliae Petch. On leaves of *L. nicotianaefolia* in Ceylon.
Phoma devastatrix Berk. On *Lobelia* (cult.) in Great Britain.
Phyllosticta bridgesii Speg. Irregular whitish leaf spots on *L. bridgesi* in Chile.
Puccinia aucta Berk. and Muell. Yellow to brown rust pustules on leaves of *L. anceps*, *L. pedunculata*, and *L. platycalyx* in Australia.
Puccinia vacua Diet. and Holw. Brown rust pustules on leaves of *Lobelia* sp. in Mexico.
Rhizoctonia destruens Tass. See Solanum.
LOESELIA. Greenhouse plants related to *Gilia*.
Puccinia fumosa Holw. Brown to black rust pustules on leaves of *L. ciliata* and *L. coccinea* in Costa Rica and Guatemala.
LOLIUM. DARNEL. RYE GRASS. Pasture grasses.
Cladochytrium caespitis Griff. and Maubl. Attacks young plants of *Lolium* sp. in France, causing stems and leaf sheaths to turn brown, accompanied by a rotting of the roots.
Fusarium loliaceum Duc. Attacks the leaves of *L. italicum* in France.
Fusarium nivale (Fr.) Sor. See Secale.
Hypochnus fuciformis (Berk.) McAlp. Produces bright-pink glutinous fungus layers on spikelets of *Agropyron scabrum*, *Agrostis alba*, *Bromus mollis*, *B. sterilis*, *Danthonia pilosa*, *Festuca bromoides*, *Lolium perenne*, *Medicago denticulata*, and *Silybum marianum* in Great Britain and Australia.
Ovularia lolii Volk. Subcircular red-brown leaf spots on *L. italicum* and *L. perenne* in France and Switzerland.
Ovularia pulchella (Ces.) Sacc. and var. **lolii-italici** Ferr. See Dactylis.
Puccinia brachypus Speg. See Bromus.
Sclerospora macrospora Sacc. See Triticum.
Septoria lolii (Cast.) Sacc. Small subcircular blackish spots on glumes of *L. perenne* in France.
Septoria passerinii Sacc. See Hordeum.
Sorosporium lolii Thuem. A smut forming black spore masses in ovaries of *L. perenne* in Austria.
Thecaphora westendorpii Fisch. Dark-brown, irregular smut sori in spikelets of *L. perenne* in Belgium and Germany.
Tilletia lolii Awd. Stinking smut in ovaries of *L. arvense*, *F. linicolum*, *L. multiflorum*, *L. perenne*, *L. remotum*, and *L. temulentum* in Europe.
Typhula graminum Karst. Forms small black sclerotia in yellowed leaves, resulting at times in destruction of seedlings of *Hordeum* spp., *L. multiflorum*, *L. perenne*, *L. temulentum*, and *Triticum* sp. in Great Britain, Sweden, and Germany.
Ustilago lolii Magn. A smut deforming the inflorescences of *L. temulentum* in Egypt.
Urocystis bolivari Bub. and Frag. A smut of *L. perenne* in Spain, producing systemic infections and preventing the development of normal heads.
LONCHOCARPUS. LANCEPOD. Tropical trees or climbing shrubs.
Aecidium menyharthi P. Henn. Rust on leaves of *Lonchocarpus* sp. in South Africa.
Diorchidium manaosense P. Henn. Dull-brown rust pustules on leaves of *L. rariflorus* in Brazil.
Endodothella lonchocarpicola (P. Henn.) Theiss. and Syd. Dull-black stromata on lower leaf surfaces of *Lonchocarpus* sp. in Brazil.
Ophiodothella atromaculans (P. Henn.) v. Hoehn. Black stromata on both leaf surfaces of *Lonchocarpus* sp. in Brazil.
Phyllachora lonchocarpi Pat. and Har. Tar spot on leaves of *Lonchocarpus* sp. in the Congo.
Phyllachora lungusaensis P. Henn. Dull-black stromata on leaves of *Lonchocarpus* sp. in Tanganyika.
Ravenelia bakeriana Syd. Brown rust pustules on leaves of *Lonchocarpus* sp. in Brazil.
Ravenelia lonchocarpi Lagh. and Diet. Cinnamon-brown rust pustules on leaves of *L. campestris* and *L. latifolius* in Brazil, Cuba, and Guatemala.
LONICERA. HONEYSUCKLE. Ornamental shrubs and climbers.
Actinonema lonicerae-alpigenae Allesch. Small circular to irregular dark-brown leaf spots on *L. alpigena* in Germany.

LONICERA—Continued.

Ascochyta periclymeni Thuem. Circular dull-yellow to gray leaf spots on *L. periclymenum* in Portugal.

Ascochyta sarmenticia Sacc. Subcircular to angular whitish leaf spots on *L. caprifolium* and *L. xylosteum* in France.

Ascochyta tatarica Allesch. On *L. tatarica* in Germany.

Ascochyta vulgaris Kab. and Bub. Circular to angular yellow-brown leaf spots with purple-brown margins on *L. xylosteum* in Austria.

Cercospora periclymeni Wint. On leaves of *L. caprifolium* and *L. periclymenum* in Russia, Denmark, and Germany.

Criella lonicerae P. Henn. and E. Nym. Brown concave spots on leaves of *Lonicera* sp. in Java.

Dothidella periclymeni (Fekl.) Theiss. and Syd. On *L. periclymenum* in Germany.

Kabatia latemarensis Bub. Dull-yellow to white leaf spots with broad purple margins on *L. caerulea* and *L. xylosteum* in Italy and Austria.

Kabatia mirabilis Bub. Angular dull-yellow to whitish leaf spots with black margins on *L. alpigena* and *L. nigra* in Austria.

Lasiobotrys lonicerae Kunz. and Schm. Circular black spots on leaves and branches of *Lonicera* spp. in India, Siberia, and Europe. What has been referred to this species in California is distinct.

Leptosphaeria periclymeni Oud. On branches of *L. periclymenum* in Russia.

Marsonia staritzii Bres. Small, then confluent, black leaf spots on *L. tatarica* in Germany.

Metasmia lonicerae Jacz. Black stromata on leaves of *L. maackii* and *L. maximowiczi* in Austria.

Mycosphaerella clymenia Sacc. Subcircular ochraceous to gray leaf spots on *L. caprifolium* and *L. periclymenum* in Denmark, Italy, and France.

Mycosphaerella implexicola (R. Maire.) Jaap. Gray leaf spots with brown margins on *L. implexa* in Dalmatia and Spain.

Ophiobolus minor Bub. On branches of *L. xylosteum* in Bohemia.

Phyllosticta alpigena Sacc. Black leaf spots on *L. nigra* in Italy.

Phyllosticta caprifolii (Op.) Sacc. Subcircular gray leaf spots on *L. caprifolium*, *L. implexa*, and *L. pallasii* in Siberia, Russia, Dalmatia, France, and Italy.

Phyllosticta nitidula Dur. and Mont. Large brownish leaf spots on *L. implexa* in Algeria.

Phyllosticta sydowii Bres. On leaves of *L. latifolia* in Germany.

Puccinia longirostris Kom. Brown rust pustules on small sunken yellow spots on *L. altmanni* and *L. turkestanica* in Turkestan.

Ramularia lonicerae Vogl. and f. **hispanica** Gz. Frag. Circular to irregular chestnut-brown leaf spots on *L. alpina* and *L. hispanica* in Italy and Spain.

Rhabdospora xylostei Lamb. and Fautr. On branches of *L. xylosteum* in France.

Rhytisma lonicericola P. Henn. Carbonous black stromata on leaves of *L. japonica*, *L. maackii*, and *L. tschonoskii* in Japan and Russia.

Rhytisma xylostei Naoumoff. On leaves of *L. xylosteum* in Russia.

Septoria obscurata Thuem. Circular ashen-colored leaf spots with dark purple margins on *L. periclymenum* and *L. tatarica* in Russia and Portugal.

Septoria xylostei Sacc. and Wint. Small whitish leaf spots with black margins on *L. nigra*, *L. tatarica*, and *L. xylosteum* in Russia and Switzerland.

Trabutia lonicerae Rac. Circular black stromata on leaves of *L. japonica* in Java.

LOPEZIA. Greenhouse plants, cultivated for their attractive flowers. Grown outdoors in the South.

Puccinia fuchsiae Syd. and Holw. See Fuchsia.

LOPHANTHUS. Erect plants with clusters of blue flowers.

Aecidium lophanthi P. Henn. Rust on leaves of *L. rugosus* in Japan.

LOTUS. Herbs or subshrubs, grown for their various-colored flowers.

Cercospora loti Höll. Circular red-brown leaf spots on *L. siliquosus* in Hungary.

Mitrula sclerotiorum Rostr. See Medicago.

Ovularia sphaeroidea Sacc. On leaves of *L. corniculatus*, *L. uliginosus*, *Vicia sativa*, and *V. villosa* in France, Denmark, Sweden, Italy, and Austria.

Peronospora lotorum Syd. Downy mildew on leaves of *L. corniculatus* and *L. uliginosus* in central and northern Europe.

Ramularia loticola Massal. On leaves of *L. corniculatus* in Italy.

Ramularia schulzeri Bäuml. See Anthyllis.

Septoria stipularis Pass. On leaves, stems, and stipules of *Lathyrus aphaca* and *Lotus corniculatus* in Denmark and Italy.

Uromyces anthyllidis (Grev.) Schroet. See Anthyllis.

Uromyces libycus Trott. Rust on leaves of *L. pusillus* in Tripoli.

Uromyces loti Blytt. Brown rust pustules on leaves of *Euphorbia cyparissia*, *Lotus angustissimus*, *L. corniculatus*, *L. palustris*, and *L. uliginosus* in Japan and Europe.

LUCUMA. Sapote. Canistel. Mamey Colorado. Tropical trees grown for fruit.

Phyllosticta lucumae Syd. Circular to subcircular whitish leaf spots with raised purple-brown margins on *L. neritifolia* in Uruguay.

Uredo lucumae Arth. and Johnst. Rust on leaves of *L. nervosa* in Cuba.

Uromyces lucumae Diet. Powdery brown leaf spots on *Lucuma* sp. in Brazil.

LUFFA. Towel gourd. Dishcloth gourd.

Corticium koleroga (Cke.) v. Hoehn. See Coffea.

LUNARIA. Honesty. Herbaceous annuals and perennials.

Helminthosporium lunariae Pöll. Circular leaf spots on *L. annua* (*L. biennis*) in Italy.

Peronospora lunariae Gäum. Downy mildew on leaves of *L. annua* and *L. rediviva* in central Europe.

LUPINUS. Lupine. Herbaceous legumes.

Ascochyta lupinicola Petr. On leaves of *Lupinus* sp. in Bohemia and Austria.

Bacillus elegans Hegyi. Yellow, then brown, spots on leaves of *L. albus*, *L. angustifolius*, and *L. luteus* in Hungary.

Ceratophorum setosum Kirch. See Cytisus.

Chalaropsis thielavioides Peyr. Said to cause a root rot of *L. albus* in Italy.

Chrysocelis lupini Lagerh. and Diet. Rust on leaves of *L. clarkei*, *L. paniculatus*, and *Lupinus* sp. in Colombia, Costa Rica, and Peru.

Gloeosporium lupinus Bondar. Anthracnose on *Lupinus* sp. in Brazil.

Rhytisma onobrychidis Sacc. Black stromata on leaves and stems of *Lathyrus latifolius*, *Lupinus* sp., and *Hedysarum coronarium* in Italy, France, and Germany.

Uromyces anthyllidis Grev. See Anthyllis.

Uromyces elatus Syd. Yellow and brown rust pustules on leaves of *L. ramosissimus*, *L. saxatilis*, and *L. tomentosus* in Bolivia and Peru.

Uromyces lupinicolus Bub. Powdery brown rust pustules on leaves of *L. albus*, *L. angustifolius*, and *Lupinus* sp. in Spain and Bohemia.

LUPINUS—Continued.

Uromyces montanus Arth. Cinnamon-brown rust pustules on leaves of *L. mexicanus* and *L. montanus* in Mexico and Guatemala.

Uromyces renovatus Syd. Powdery brown rust pustules on leaves of *L. albus*, *L. angustifolius*, *L. hispanicus*, *L. luteus*, and *L. termis* in Europe, northern Africa, and Madeira.

Uromyces rugosus Arth. Powdery cinnamon-brown to dark-brown rust pustules on leaves of *Lupinus* sp. in Mexico.

LUZULA. JUNCOIDES Ag. WOOD-RUSH. Grass or rushlike perennial herbs.

Ascochyta teretiuscula Sacc. and Roum. On leaves of *L. campestris* and *L. vernalis* in France and Yugoslavia.

Phyllachora luzulae (Rabh.) Cke. Dull-black stromata on both leaf surfaces of *Luzula* sp. in Germany.

Puccinia luzulae-maximae Diet. Leaf rust on *L. maxima* in Europe.

Puccinia luzulina Syd. Cinnamon-brown rust pustules on leaves of *L. alopecurus* in South America.

Puccinia oblongata (Lk.) Wint. Dull-brown to black rust pustules on red-brown irregular leaf spots on *L. campestris*, *L. forsteri*, *L. maxima*, *L. multiflora*, *L. nivea*, *L. pilosa*, and *L. sylvatica* in Europe.

Puccinia tenuispora McAlp. Yellow-brown to dark-brown rust pustules on leaves and stems of *L. campestris* and *L. oldfieldii* in Australia and Tasmania.

Septoria chanousiana Ferr. Purple-brown leaf spots on *L. lutea* in Italy.

Septoria luzulae Schroet. On leaves of *L. forsteri* in Yugoslavia.

Uredo antarctina Berk. Rust on leaves of *L. crinita* in the Campbell Islands.

Urocystis luzulae (Schroet.) Wt. Black smut pustules on leaves of *L. multiflora* and *L. pilosa* in Denmark and Germany.

Ustilago hyperborea Blytt. Smut in fruit of *L. hyperborea* in Norway.

Ustilago liebmanni P. Henn. A smut transforming the ovaries of *Luzula* sp. in Mexico into brown spore masses.

Ustilago vuilyckii Oud. and Beyer. A smut forming black spore masses in ovaries of *L. campestris* in Holland.

LYCASTE. Terrestrial and epiphytic orchids. See Orchidaceae.

LYCHNIS. CAMPION. CORN COCKLE. MALTESE CROSS. Flower-garden herbs.

Ascochyta cookei Mass. Blotches on leaves of *L. alba* (*L. vespertina*) in Great Britain.

Ascochyta dianthi (A. and S.) Berk. See Dianthus.

Fabraea inoplexa Bres. and Cap. On leaves of *L. flos-jovis* in Italy.

Gloeosporium lychnidis Oud. Anthracnose on leaves of *L. dioica* (*L. diurna*) in Holland.

Marsonia delastrei (Delacr.) Sacc. Dull-yellow indefinite areas on leaves and stems of *L. chalcedonica*, *L. dioica*, *Silene latifolia*, *S. noctiflora*, and *Agrostemma githago* in Europe and Siberia. Reported from Wisconsin.

Peronospora lychnitis Gäum. Downy mildew on leaves of *L. coronaria* in Germany.

Phyllosticta punctiformis (Desm.) Allesch. On leaves of *L. dioica* in Scotland.

Puccinia lychnidis-miqueliana Diet. Rust on leaves of *L. miqueliana* in Japan.

Ramularia chalcedonica Allesch. Ashen leaf spots on *L. chalceaonica* in Germany.

Ramularia lychnicola Cke. On leaves of *L. chalcedonica*, *L. dioica*, and *Silene latifolia* in Great Britain, Austria, and Germany.

Septoria lychnidicola P. Brun. Circular to oblong ochraceous leaf spots with brown margins on *L. flos-cuculi* in France.

Septoria lychnidis Desm. Irregular red-brown leaf spots on *L. chalcedonica*, *L. dioica*, *L. flos-jovis* and *Gypsophila altissima* in Siberia, Italy, France, and Great Britain.

Septoria melandrii Pass. Subcircular reddish leaf spots with dull-brown margins on *L. diurna* and *L. alba* (*L. vespertina*) in Italy. Reported from Wisconsin.

Uromyces behenis (DC.) Ung. Rust on leaves of *L. indica* in India.

Uromyces crassivertex Diet. Cinnamon-brown to black rust pustules on leaves of *L. miqueliana* in Japan.

Uromyces lychnidicola Speg. Rust on leaves of *L. magellanica* and *L. patagonica* in Argentina.

LYCIUM. MATRIMONY VINE. Ornamental shrubs and vines.

Ascochyta destructiva Kab. and Bub. Subcircular, often confluent, ochraceous leaf spots on *L. barbarum* in Bohemia.

Ascochyta lycii Rostr. Ashen leaf spots with dull-brown margins on *L. barbarum* and *L. halimifolium* in Denmark.

Microsphaera mougeotii Lév. Powdery mildew on leaves of *L. barbarum*, *L. europaeum*, *L. ovatum*, and *L. ruthenicum* in Europe.

Phyllosticta destructiva Desm. See Althaea.

Puccinia afra Wint. Powdery brown rust pustules on leaves, peduncles, and sepals of *L. afrum* in Spain and the Union of South Africa.

Puccinia lycii Kalchbr. Brown rust pustules on leaves of *L. tubulosum* in the Union of South Africa. Reported from Ohio.

Puccinia lycicola Speg. Brown rust pustules on leaves of *L. argenteum* and *L. patagonicum* in Argentina.

Puccinia turgida Syd. Powdery brown to dark-brown rust pustules on leaves of *L. europaeum* in Palestine.

Septoria lycii Paul. and Gz. Frag. On leaves of *L. helimifolium* (*L. vulgare*) in Spain.

Septoria lycicola Speg. Circular definite leaf spots on *L. cesuroides* in Argentina.

Uredo megalospora Speg. Rust on leaves of *Lycium* sp. in Argentina.

LYCOPERSICUM. (*Lycopersicon.*) TOMATO. Herbaceous plants, cultivated for their fruit.

Bacillus caulivorus Prill. and Delacr. See Solanum.

Bacterium briosii Pavar. Bacteriosis of leaves, stalks, and fruits of *L. esculentum* in Italy and France. The leaves wither up, new buds are deformed, and long brown spots appear on the stems.

Bacterium lycopersici Burgwitz. This bacterium is reported as the cause of "blossom-end rot" of fruit of *L. esculentum* in Russia.

Chrysophlyctis endobiotica Schilb. See Solanum.

Diplodina lycopersicola (v. Bond.) Mont. Large black spots on tops or sides of both green and ripe fruit of *L. esculentum* in Russia. The spots are somewhat depressed, warty, black at the centers, and brown at the margins, with surrounding dirty-green areas. Probably not distinct from *Phoma destructiva* Plowr.

Fusarium erubescens A. and v. Ov. Small black sunken spots on fruit of *L. esculentum* in Germany.

Hainesia lycopersici Speg. On leaves of *L. esculentum* in Argentina.

Phoma ferrarisii Ciferri. Causes a fruit rot of *L. esculentum* in Italy. *Ramularia ferrarisii* Cif. is described as a stage of the same fungus. Probably not distinct from *P. destructiva* Plowr.

LYCOPERSICUM—Continued.

Phytophthora cryptogea Pethyb. and Laffer. This fungus has been found as one of the causes of damping off of seedlings of *L. esculentum* in Great Britain. It also attacks *Cineraria* seedlings. Diseased plants show brown areas at the soil level and collapse, breaking over at the point of infection.

Phytophthora melongenae K. Saw. See Solanum.

Phytophthora mexicana Hots. and Hartge. This downy mildew is said to cause a rot of fruit of *L. esculentum* in Mexico and to be capable of attacking other plant parts as well. Infected fruit have been imported into the United States.

Phytophthora parasitica Dastur. See Ricinus.

Puccinia pitteriana Arth. See Solanum.

Rhizoctonia sp. See Vigna.

Sclerotium setosum Bewley and Shearn. Affected plants stop growing; the lower leaves turn yellow and die prematurely, and the terminal growths are pale and weak. The stems become hollow and yellow, and a dark-brown discoloration spreads up the stems from the ground level. Finally all the leaves wither and the plants die. The roots decay and shrivel. Numerous minute black globular sclerotia occur in the rotted tissues of the roots and the bases of the stems. On *L. esculentum* in England. This Sclerotium has been connected with *Colletotrichum tabificum* (Hallier) Pethybr. *Vermicularia varians* Duc. is also considered synonymous.

Spongospora subterranea (Walls.) Lang. See Solanum.

Vermicularia capsici Syd. See Capsicum.

Vermicularia varians Duc. See Solanum.

Verticillium pulverulentum Gouwen. Circular, sharply delimited, dark spots on fruit of *L. esculentum*, causing premature fall in Holland.

LYGODIUM. CLIMBING FERN.

Aphelenchus olesistus Ritz. Boz. See Begonia.

Helminthosporium filicicola P. Henn. Effuse leaf spots on *Lygodium* sp. and *Selaginella* sp. in Peru and Brazil.

Milesia blechni Syd. See Blechnum.

Mycosphaerella ditissima Syd. On fronds of *L. flexuosum* in the Philippines.

Puccinia lygodii (Har.) Arth. (*Uredo lygodii* Har.) Yellow-brown rust pustules on fronds of *Lygodium* sp. in Brazil.

LYONIA. Ornamental shrubs grown for their white flowers and dense foliage.

Exobasidium fawcettii Mass. On leaves of *L. jamaicensis* in Jamaica. Probably not distinct from *E. vaccinii* Fckl.

LYSILOMA. Trees and shrubs of the American Tropics.

Ravenelia lysilomae Arth. Yellow-brown to chestnut-brown rust pustules on leaves of *L. tergemina* in Mexico.

Ravenelia sololensis Arth. and Holw. Rust on leaves of *L. acapulcensis* and *L. bahamensis* in Mexico, Cuba, and Guatemala.

LYSIMACHIA. LOOSESTRIFE. Erect or creeping leafy herbs.

Aecidium lysimachiae-japonicae Diet. Leaves of *L. japonica* covered with rust pustules in Japan.

Phyllosticta lysimachiae Allesch. Irregular, then confluent, greenish-ashen, then pale ochraceous, leaf spots on *L. vulgaris* in Russia and Germany.

Puccinia dieteliana Syd. Yellow and dark-brown rust pustules on leaves of *L. clethroides* and *L. fortunei* in Japan.

Ramularia lysimachiae Thuem. On leaves of *L. nummularia*, *L. thyrsiflora*, and *L. vulgaris* in Siberia, Yugoslavia, Denmark, Austria, Bohemia, and Germany. Reported from Wisconsin.

Ramularia lysimachiarum Lindr. Brown to dark-green, then yellow, leaf spots on *L. nummularia* in Sweden, Finland, Denmark, and Great Britain.

Septoria bresadoleana Krieger. Reddish leaf spots, becoming grayish white at the centers, on *L. vulgaris* in Germany.

Septoria lysimachiae West. Brown leaf spots on *L. nummularia*, *L. thyrsiflora*, and *L. vulgaris* in Siberia and Europe.

Septoria nambuana P. Henn. Red-brown leaf spots on *L. brachystachys* in Japan.

LYTHRUM. Spiked or purple loosestrife. Herbs or subshrubs.

Aecidium lythri Diet. and Neg. Rust on leaves of *L. hyssopifolium* in Chile.

Cercospora lythri (West.) Niessl. On leaves of *L. salicaria* in Spain, Belgium, Italy, and Germany.

Doassansia winteriana (Wint.) Magn. A smut producing small globose punctiform galls on both leaf surfaces of *L. hyssopifolium* in Australia.

Septoria brissaceana Sacc. and Let. Small dull-yellow leaf spots with dark margins on *L. salicaria* in Denmark, France, Russia, and Germany.

MAACKIA. Trees grown for their handsome foliage and panicles of white flowers.

Uromyces amurensis Kom. Leaf rust on *M. amurensis* in Japan.

MABA. Tropical trees and shrubs with hard ebonylike wood.

Aecidium bicolor Sacc. Rust on leaves of *M. buxifolia* and *M. natalensis* in India and the Union of South Africa.

Aecidium melaleucum Syd. Leaf rust on *M. buxifolia* in India.

Aecidium rhytismoideum B. and Br. var. **mabae** P. Henn. See Diospyros.

Ascochyta mabiana Sacc. Dull-brown leaf spots with darker margins on *M. abyssinica* in Abyssinia.

Exobasidium symplocl-japonicae Kusano. See Symplocos.

Phyllachora mabae (P. Henn.) Theiss. and Syd. Circular shiny-black stromata on leaves of *M. inconstans* in Brazil.

MACARANGA. Trees or shrubs.

Cercospora macarangae Syd. Circular ochraceous leaf spots on *M. tanaria* in the Philippines.

Marsonia pavonina Syd. Leaf spots on *M. bicolor* in the Philippines.

Phyllachora macarangae P. Henn. Black stromata on circular brown leaf spots on *Macaranga* sp. in the Philippines.

MACFADYENA. Tall climbing tropical shrubs.

Leptothyrium heterospermum Speg. Shield-shaped black fruiting bodies on yellow leaf spots on *M. cynanchoides* in Argentina.

MACLURA. TOXYLON Ag. OSAGE ORANGE. BOW WOOD. Cultivated as a hedge plant and for its evergreen foliage and orange-like fruit.

Ectostroma maclurae Thuem. On leaves of *M. aurantiaca* (*Toxylon pomiferum*) in Italy and Portugal.

Septoria maclurae P. Brun. Subcircular to irregular olive or dull-yellow leaf spots with brown margins on *M. aurantiaca* (*T. pomiferum*) in France.

Uredo maclurae Speg. Rust on leaves of *M. aurantiaca* (*T. pomiferum*) and *M. ucora* in Argentina.

MACROZAMIA. Cycaslike plants.

Cryptosporella macrozamiae P. Henn. On leaf blades and petioles of *M. fraseri* in Australia.

MAESA. Tropical and subtropical shrubs.
Amazonia peregrina Syd. On *M. indica* and *M. laza* in Ceylon and the Philippines.
Fusidium maesae P. Henn. Pale or ashen leaf spots on *M. lanceolata* in Tanganyika.
Physalospora chaenostoma Sacc. On leaves of *Maesa* sp. in Natal.
Septoria maesae F. Tassi. Circular yellowish, then dull-brown, leaf spots on *M. indica* in Italy.
MAGNOLIA. Woody plants cultivated for their handsome foliage and showy flowers.
Ascochyta magnoliae Thuem. On leaves of *M. grandiflora* in Italy.
Gloeosporium haynaldianum Sacc. and Roum. Anthracnose on leaves of *M. grandiflora* and *M. soulangeana* in Denmark, Italy, and France.
Hendersonia magnoliae Sacc. Irregular whitish leaf spots with brown margins on *M. grandiflora* in France and Italy.
Mycosphaerella elatior Sacc. and Speg. and var. **apula** Sacc. On leaves of *M. grandiflora* and *Liriodendron tulipifera* in Spain and Italy.
Phyllosticta kobus P. Henn. Irregular dull-brown leaf spots on *M. kobus* in Japan.
Phyllosticta yulan Tassi. Large pale-brown leaf spots on *M. denudata* (*M. yulan*) in Italy.
Septoria caerulescens Tassi. Fuscous leaf spots on *M. denudata* in Italy.
Sphaeropsis magnoliae Magnag. On *Magnolia* sp. in Italy.
MAGYDARIS. Perennial herbs.
Puccinia magydaridis Pat. and Trab. Cinnamon-brown to black rust pustules on leaves of *M. panacina* and *M. tomentosa* in Algeria, Tunis, and Spain.
MAHONIA. See Berberis.
MAIANTHEMUM. UNIFOLIUM Ag. Small spring-blooming woody perennials.
Cercospora majanthemi Fckl. On leaves of *M. bifolium* in Denmark, Belgium, Sweden, Russia, Siberia, and Austria. Reported from Ohio.
Mycosphaerella asteroma (Fr.) Lind. See Convallaria.
Puccinia majanthemi Diet. Brown rust pustules on both leaf surfaces and on petioles of *M. bifolium* in Japan.
Ramularia rubicunda Bres. On leaves of *M. bifolium* in Russia, Germany, and Austria.
Septoria majanthemi West. Dull-gray indefinite leaf spots on *M. bifolium* in Belgium and Germany.
MALLOTUS. MONKEY-FACE TREE. Tropical trees or shrubs.
Cercospora laguensis (Sacc.) Yates. On leaves of *M. moluccanus* in the Philippines.
Cronartium malloti Racib. Golden-yellow to red-brown rust pustules on leaves of *M. moluccanus* in Java.
Helminthosporium insigne Sacc. On *M. philippinensis* in the Philippines.
Phyllosticta marmorta Cke. Confluent leaf spots on *M. philippinensis* in India and the Philippines.
Uromyces malloti P. Henn. Brown rust sori on leaves of *M. moluccanus* in New Guinea and the Philippines.
MALUS. APPLE. CRAB.
Asteroma mali Desm. Circular brown leaf spots on *Malus* sp. in Germany.
Bacterium mali Brzez. Reported as the cause of a canker disease of trunks and limbs of *Malus* (apple) in central Europe.
Bacterium sp. Blossom blight. See Pyrus.
Botryosphaeria mali Putt. Causes a cankering of branches and trunks of *Malus* (apple) in the Union of South Africa. Death of infected branches, and even of entire trees, may be brought about through girdling.
Cercospora porrigo Speg. Causes a drying of young fruits of *Malus* sp. in Argentina.
Colletotrichum piri Noack. See Pyrus.
Coniothecium chromatosporum Cda. This fungus is reported as the cause of the blister and fruit-cracking disease of *Pyrus* and *Malus* in the Union of South Africa, Australia, Tasmania, New Zealand, and India. Dark specks appear in groups on the twigs and branches, finally becoming reddish-brown blisters. Diseased twigs die back. On the fruit the fungus produces a scurfy condition or russeting. Young fruit when attacked crack on expanding.
Dendrodochium pulchrum Marchal. On *Malus* (apple) in Belgium.
Diaporthe mali Miura. Pale, discolored areas, from 1 to 2 centimeters in diameter, on the leaves of *Malus* (apple) in Japan, producing curling and defoliation. Young shoots and twigs also show irregular brown areas which cause die-back. Spots on the fruit are circular to irregular, coalescing and involving the entire fruit in a brown rot. A serious disease throughout Japan. *Diaporthe mali* Bres., reported from Australia, is apparently distinct.
Diaporthe perniciosa Marchal. See Prunus.
Diplodia griffoni Sacc. and Trav. This fungus has been confused with *Physalospora cydoniae* but is considered distinct. It causes a serious canker disease of twigs of *Malus* (apple) and *Pyrus* (pear) in Europe and New Zealand. The cankers are slightly depressed, reddish brown, zonate, and with the surfaces studded with the pycnidia. Old cankers are dull brown.
Dothiorella vinosa Marchal. See Prunus.
Fusarium sp. A blossom blight of *Malus* sp. has been attributed to this fungus in Great Britain.
Gymnosporangium sabinae (DC.) Wint. See Juniperus.
Gymnosporangium yamadae Miy. See Juniperus.
Helicobasidium tanakae Miy. See Morus.
Hydnum schiedermayeri Heufler. A wound parasite of *Malus* sp. in Europe, causing a rot of bark and wood of trunk and limbs. Reported from Pennsylvania.
Labrella piricola Bres. and Sacc. See Pyrus.
Laestadia mali (Fckl.) Sacc. On leaves of *Malus* sp. in Belgium and Germany.
Leptosphaeria vagabunda Sacc. Causes a fruit spot and rot of *Malus* sp. in Great Britain.
Marsonia mali P. Henn. Subcircular, then confluent, dull-brown leaf spots with purple margins on *Malus* in Japan.
Melanobasidium mali Maubl. Oval or elongate whitish leaf spots with brown margins on *Malus* in Spain.
Melasmia mali Oud On leaves of *Malus* in Holland.
Mycosphaerella pomacearum Sacc. On leaves of *Malus* sp. and *Cydonia* sp. in China and France.
Mycosphaerella pomi (Pass.) Lind. On leaves of *Malus* in Italy.
Myxosporium mali Bres. Brown spotting and rot of fruit of *Malus* in Great Britain and on dead twigs in Germany.
Ochropsora pallida Rostr. See Sorbus.
Phacidiella discolor (Mont. and Sacc.) A. Poteb. Causes a fruit rot and trunk canker of *Malus* (apple) and *Pyrus* (pear) in Europe.
Phyllosticta mali Prill. and Delacr. Small elongate or circular ochraceous, then dirty-gray, leaf spots with fuscous margins on *Malus* sp. in Denmark, Russia, Bulgaria, and France. Reported from West Virginia.
Phyllosticta briardi Sacc. Brown or ochraceous leaf spots with darker borders on *Malus* and *Pyrus* sp. in Russia, Great Britain, France, Malta, and Hungary, often causing defoliation.

MALUS—Continued.

Phytophthora syringae Kleb. Produces a dark-brown rather firm and elastic rot of fruit of *Malus* in Europe. See, also, Syringa.

Plectodiscella piri Woro. See Pyrus.

Pleospora pomorum Horne. Causes a brown spotting and rot of fruit of *Malus* in Great Britain.

Polyporus purpureus Horne. Associated with fruit spotting and rotting of *Malus* in Great Britain. *P. aureus* Horne, *P. pomi* Horne, and *P. recurvatus* Horne have been found in similar situations.

Polystigma ochraceum (Wahlb.) DC. See Prunus.

Sclerotinia mali Tak. Produces brown areas on leaf blades and petioles, flower stalks, and branches and a brown rot of young fruit of *Malus* in Japan.

Sclerotium stellatum Horne. Fruit spot and rot of *Malus* in Great Britain.

Spilocaea pomi Fr. Round sunken brown spots on ripe fruit of *Malus*, especially during storage, in Russia, Great Britain, and Germany. Called the "apple-speck" disease.

Sporodesmium cerebriforme McAlp. "Eye-scale" disease of *Malus* in Australia.

Stagonospora mali Delacr. See Pyrus.

Stereum purpureum Pers. See Prunus.

Trichoseptoria fructigena Maubl. See Cydonia.

Trichothecium candidum Walbr. "White-apple blotch" is marked by small round spots with brown-black borders, causing a brownish rot and mummification of fruit of *Malus* in Europe. Probably not distinct from *T. roseum*.

Valsa mali Miy. and Yam. Oblong to irregular slightly elevated brown spots on branches of *Malus* in Japan. These areas dry out, become sunken, more or less darkened, and the surface cracks.

A trunk canker of apple (*Malus*), with which bacteria and a *Cytospora*-like fungus are associated, has been reported from Great Britain. Large, rapidly extending, sunken cankers form on the lower part of the trunk, soon girdling and killing infected trees.

MALVA. MALLOW. Annual or perennial herbs.

Ascochyta malvae H. Zimm. Subcircular ochraceous, then white, leaf spots on *M. neglecta* and *M. vulgaris* in Austria and Germany.

Ascochyta malvicola Sacc. Subcircular or sinuous whitish leaf spots on *M. rotundifolia* and *M. sylvestris* in Italy and Austria.

Ascochyta montenegrina Bub. Subcircular, often confluent, yellow leaf spots on *M. sylvestris* in Yugoslavia.

Cercospora malvarum Sacc. Large olive-colored leaf spots on *M. moschata* in Spain and Denmark. Reported from Kansas.

Cercospora polymorpha Bub. Subcircular, oblong, or angular yellowish leaf spots with narrow dark-brown borders on *M. sylvestris* and *M. verticillata* in China and Yugoslavia.

Phyllosticta destructiva Desm. See Althaea.

Puccinia heterogenea Lagerh. Chestnut-colored rust pustules on leaves and stems of *Althaea rosea*, *M. crispa*, *M. nicaeensis*, and *M. peruviana* in Ecuador.

Ramularia malvae Feki. Circular to elongate white leaf spots on *M. moschata*, *M. rotundifolia*, and *M. sylvestris* in Denmark and Germany.

Septoria heterochroa Desm. Small subcircular gray-brown, then whitish leaf spots on *M. neglecta*, *Althaea officinalis*, and *Sida* sp. in Costa Rica, Russia, Denmark, Italy, Belgium, and Great Britain.

MALVASTRUM. FALSE MALLOW. Mallowlike herbs.

Aecidium malvastricola P. Henn. Rust on leaves of *M. spicatum* in Argentina.

MANDEVILLA. Tall tropical climbers.

Phyllosticta gelsemii E. and E. var. **mandevilleae** Sacc. and Scal. Subcircular gray leaf spots on *M. suaveolens* in Portugal.

Uredo maudevillae Mayor. Rust on leaves of *M.* (*Echites*) *mollissima* and *M. tomentosa* in Colombia and Trinidad.

MANETTIA. Twining plants grown for their flowers.

Puccinia niedericinii P. Henn. Cinnamon-brown rust pustules on leaves of *M. bicolor*, *M. ignita*, and *M. lelanthiflora* in Argentina and Paraguay.

Uromyces tener Schroet. Powdery brown rust pustules on leaves of *M. gracilis* in Brazil.

MANGIFERA. MANGO. Tropical fruit and shade trees.

Bacillus mangiferae Doidge. This bacterial blight first appears on mango (*M. indica*) fruits as small water-soaked areas which rapidly enlarge, turn brown, and crack, corky tissue developing. Gumming generally occurs. Similar irregular brown spots occur on leaf blades and petioles, young twigs, peduncles, and pedicels. Diseased fruits fall. The disease is serious in Portuguese east Africa and the Union of South Africa.

Cercospora mangiferae Koord. Small circular numerous brown leaf spots on *M. indica* in Java, Philippines, and Haiti.

Coccomyces vilis Syd. and Butl. Irregular spots with purple margins on leaves of *M. indica* in India.

Corticium salmonicolor B. and Br. See Citrus.

Cronartium kemangae Racib. Brown rust pustules on irregular leaf spots on *M. kemanga* in Java.

Diplodia cacaoicola P. Henn. See Theobroma.

Endothia havenensis Brun. See Eucalyptus.

Eutype erumpens Mass. See Theobroma.

Gloeosporium mangiferae P. Henn. (*Gloeosporium mangae* Noack.). These anthracnose fungi, reported as causing bloom blight, fruit rot, and leaf spotting of the mango (*M. indica*) in Trinidad, Brazil, and elsewhere, are certainly synonymous with *Colletotrichum gloeosporioides*, widespread in the United States.

Leptothyrium circumscissum Syd. Large irregular or angular leaf spots on *M. indica* in the Philippines. Especially destructive to seedlings.

Macrophoma sp. Attacks the fruit of *M. indica* in Brazil, causing them to blacken and fall to the ground, rotting or mummifying.

Meliola mangiferae Earle. Black circular to irregular superficial fungus patches on leaves of *M. indica* in the West Indies, the Philippines, and Malaya.

Oidium sp. A powdery mildew attacking the leaves of *M. indica* has been reported from India and Cuba.

Phyllachora sp. Tar spot on leaves of *M. indica* in the Philippines.

Phyllosticta mortoni Fairm. Numerous small deep-brown angular leaf spots on *M. indica* in the Bahamas, Mexico, and Florida.

Rosellinia bunodes B. and Br. See Citrus.

Sphaerostilbe repens B. and Br. See Hevea.

Stilbella flavida (Cke.) Lind. See Coffea.

Zimmermaniella trispora P. Henn. Black stromata on leaves of *M. indica* in Java.

Eucalyptus disease. See Eucalyptus.

MANIHOT. CASSAVA. Sometimes called mandioca. Ceara rubber tree. Tropical trees and shrubs with many economic uses.

Ascochyta manihotis P. Henn. Circular pale-yellow-brown leaf spots on *M. utilissima* in Tanganyika.

Bacillus manihotus Arthaud. and Ber. Young shoots rot internally, the vascular bundles decompose, wither, and die. On older shoots elongate gum pockets form and a yellow gum exudes. On *M. palmata* and *M. utilissima* in Brazil.

Cercospora cearae Petch. Irregular, then confluent, red-brown, then gray, spots on *M. glaziovii* and *M. piauhyensis* in India, Ceylon, Malaya, and Uganda, causing the leaves to crumple up and fall.

Cercospora henningsii Allesch. Subcircular to irregular pale-ochraceous leaf spots on *M. palmata* and *M. utilissima* in Porto Rico, Dominican Republic, Cuba, Ceylon, Siam, Indo-China, the Philippines, and tropical Africa.

Cercospora manihotis P. Henn. Circular or effuse dark-fuscous leaf spots on *M. utilissima* in Brazil, China, the Philippines, and central Africa.

Cercosporella pseudoidium Speg. Subcircular pale-brown leaf spots on *M. utilissima* in Paraguay and Brazil.

Colletotrichum lussoniense Sacc. Anthracnose on *M. utilissima* in the Philippines.

Colletotrichum manihotis P. Henn. Circular whitish leaf spots with reddish-brown surrounding zones on *M. utilissima* in Brazil.

Diplodia cacaoicola P. Henn. See Theobroma.

Fomes lamaoensis Murr. See Hevea.

Fomes lignosus Klotzsch. See Hevea.

Haplographium manihoticola Vinc. Circular brown, zoned leaf spots on *M. glaziovii* in Brazil.

Macrophoma manihotis P. Henn. On leaves of *M. utilissima* in Tanganyika.

Mycosphaerella manihotis Syd. Circular brown leaf spots on *M. utilissima* in Brazil.

Phyllosticta manihoticola Syd. On leaves of *M. dichotoma*, *M. glaziovii*, and *M. heterophylla* in the Philippines.

Rosellinia arcuata Petch. See Thea.

Septogloeum manihotis Zimm. Brown leaf spots on *M. utilissima* in Java, India, Ceylon, and east Africa. Probably the same as *Cercospora henningsii* Allesch.

Stagonospora cassavae Wolk. A wound parasite attacking rooted cuttings of *M. utilissima* in Java.

Uromyces carthagenensis Speg. Yellow and dark-brown rust pustules on leaves and stems of *M. carthagenensis* and *M. tweediana* in Argentina.

Uromyces janiphae (Wint.) Arth. Rust on leaves of *M. utilissima* in Porto Rico, Cuba, Dominican Republic, Trinidad, and South America.

Uromyces manihoticola P. Henn. Powdery dark-brown rust pustules on leaves of *Manihot* sp. in Brazil.

Uromyces manihotis P. Henn. Brown to black rust pustules on leaf blades and petioles, stems, and flowers of *M. glaziovii* and *M. utilissima* in Brazil. Produces a witches'-broom effect, as well as galls, on twigs and branches.

Uromyces manihotis-catingae P. Henn. Powdery brown rust pustules on leaves of *M. catingae* and *M. glaziovii* in Brazil.

MAPANIA. Tropical plants of the sedge family.

Puccinia mapaniae Raeib. Powdery dark-brown rust pustules on *Mapania* sp. in Java.

MAPROUNEA. Tropical trees and shrubs.

Aecidium maprouneae P. Henn. Rust on irregular, fuscous leaf spots on *Maprounea* sp. in Peru and Brazil.

Phyllachora maprounea P. Henn. Black stromata on yellowish to violet indefinite leaf spots on *M. surinamensis* in Peru.

Uredo maprouneae P. Henn. Rust on leaves of *M. guianensis* in Peru.

MARANTA. ARROWROOT. Foliage plants.

Puccinia cannae (Wint.) P. Henn. See Canna.

Rosellinia bunodes B. and Br. See Citrus.

Sclerotium sp. See Saccharum.

Sphaerostilbe repens B. and Br. Causes a soft rot of the underground stems of *M. arundinacea*. See also Hevea.

MARATTIA. Tropical ferns.

Leptosphaeria caffra Thuem. Large, more or less circular, leaf spots on *M. salicifolia* in the Union of South Africa.

MARIANA. See Silybum.

MARKHAMIA. Tropical evergreen trees and shrubs.

Phragmidiella markhamiae P. Henn. Brown rust pustules on leaves of *M. zansibarensis* in Tanganyika.

MARRUBIUM. HOARHOUND. Aromatic herbs.

Phyllosticta marrubii McAlp. Pale-brown irregular leaf spots on *M. vulgare* in Australia.

Ramularia marrubii Mass. Small rufous angular leaf spots on *M. album*, *M. creticum*, and *M. vulgare* in Italy, Esthonia, and Yugoslavia.

Uredo marrubii Rabh. Rust on leaves of *Marrubium* sp. in Italy.

MARSDENIA. Twining shrubs.

Puccinia aequatoriensis Syd. Gray-brown rust pustules on leaves of *Marsdenia* sp. in Ecuador.

Puccinia marsdeniae Diet. and Holw. Yellow-brown to black rust pustules on leaves of *M. mexicana* in Mexico and Guatemala.

Septoria asclepiadea Sacc. See Cynanchum.

MARTINEZIA. See Palmae.

MARTYNIA. UNICORN PLANT. Annual and perennial plants sometimes cultivated for the peculiar seed pods.

Cercospora decolor Pass. Circular gray leaf spots on *M. lutea* in Argentina and Italy.

Phyllosticta martyniae Thuem. More or less circular leaf spots on *M. lutea* in Portugal.

MASDEVALLIA. See Orchidaceae.

MATRICARIA. FALSE CAMOMILE. Annual or perennial weedy herbs.

Cylindrosporium matricariae Diet. On leaves of *M. chamomilla* in Germany.

Entyloma matricariae Rostr. Smut sori on leaves of *M. discoidea*, *M. inodora*, and *Tripleurospermum disciformis* in Denmark and Sweden.

Entyloma trailii Muss. Smut sori in small subcircular to ovate spots on stems and leaves of *M. inodora* in Great Britain.

Peronospora leptosperma (De By.) Gäum. See Chrysanthemum.

Septoria matricariae Höll. On leaves of *M. chamomilla* and *M. discoidea* in Hungary and Germany.

MATTHIOLA. STOCK. Sometimes called gilliflower. Flower-garden plants.
Ascochyta matthiolae Oud. On pods of *M. incana* in Holland.
Bacterium matthiolae Br. and Pav. Pale-green irregular spots first appear, becoming brown and causing deforming and curling of the leaves. Inflorescences are checked in their development. On *M. annua* in Italy.
Helminthosporium roridum Tode. On leaves of *M. incana* in Europe.
Peronospora matthiolae Gäum. Downy mildew on leaves of *M. incana* in central and north Europe.
Puccinia oudemansii Tranzsch. Powdery brown rust pustules on leaf blades and petioles of *M. nudicaulis* and *Parrya pinnatifida* in Turkestan.
Sclerotinia matthiolae Lendner. Causes a stem rot and blight of *M. vallesiaca* in Switzerland. Long black sclerotia form in the rotted stems.
Septoria henriquesii Thuem. and f. **santonensis** P. Brun. On leaves of *M. incana* in France and Portugal.
Urocystis coralloides Rostr. Irregular gray coral-shaped smut masses on roots of *M. sinuata* and *Turritis glabra* (*Arabis perfoliata*) in France and Denmark.
MAURITIA. Fan palms. See Palmae.
MAXILLARIA. Epiphytic orchids. See Orchidaceae.
MAYTENUS. Trees and shrubs.
Aecidium mayteni Pazsch. Rust on leaves of *M. brasiliensis* and *Maytenus* sp. in Brazil.
Heterobotrys paradoxa Sacc. and subsp. **chilensis** Sacc. and Syd. On leaves of *M. magellanica* in Chile.
Phyllosticta mayteni Speg. Leaf spots on *M. magellanica* in Chile.
Septoria mayteni Wint. On leaves of *M. magellanica* in Tierra del Fuego.
Syncarpella missionum (Speg.) Theiss. and Syd. Black carbonous stromata on living twigs of *M. ligustrina* in Argentina.
MAZUS. Low annual or perennial rock-garden plants.
Aecidium foetidum Diet. Rust on leaves of *M. rugosus* in Japan.
MEDICAGO. MEDICK. Alfalfa. Herbaceous perennials cultivated as forage plants.
Ascochyta affinis Jaap. Circular to elliptical white leaf spots with brown borders on *M. arabica* in Dalmatia.
Hypochnus fuciformis (Berk.) McAlp. See Lolium.
Laestadia insidiosa Mass. On leaves of *M. sativa* in Tasmania.
Leptosphaeria circinans (Fckl.) Sacc. See Asparagus.
Marsonia medicaginis Voss. Circular to elliptical dull-yellow leaf spots on *M. lupulina* in Europe.
Mitrula sclerotiorum Rostr. Forms black sclerotia in the roots, infected plants dying. On *M. sativa*, *Lotus corniculatus*, *L. uliginosus*, and *Lotus* sp. in Europe.
Mycosphaerella destructiva B. and Br. On leaves of *M. sativa* in Australia.
Ovularia medicaginis Br. and Cav. On leaves of *M. sativa* in Italy.
Peronospora aestivalis Syd. Downy mildew on leaves of *M. denticulata*, *M. falcata*, *M. lupulina*, *M. media*, *M. minima*, and *M. sativa* in Europe and Australia. Occurs sparingly in the United States.
Phyllosticta bonanseana Sacc. Indefinite yellow areas on leaves of *M. arborea* in Mexico.
Rhizoctonia destruens Tassi. See Solanum.
Rhizoctonia napi West. See Brassica.
Septoria medicaginis Rob. and Desm. Subcircular to irregular whitish leaf spots on *M. lupulina* and *M. sativa* in Argentina, Russia, Sweden, Denmark, Italy, and France.
Tylenchus dipsaci Kuehn. This nematode is a serious pest of alfalfa (*M. sativa*), greatly reducing yields by stunting the plants. It has been reported from several localities in the western United States. See Narcissus.
Typhula trifolii Rostr. See Trifolium.
Uredo medicaginicola Speg. Rust on stems and petioles of *M. sativa* in Argentina.
Uredo medicaginis Speg. Rust on leaves of *M. denticulata* in Argentina.
Uromyces anthyllidis (Grev.) Schroet. See Anthyllis.
Uromyces alfalfae (Lagerh.) Magn. The crown-wart of alfalfa (*M. satira*) is a serious disease in Europe, India, and South America. The disease has been found in limited areas in the United States. It is characterized by warts or galls at the base of the stems. These bodies are irregular in shape, varying in size from a fraction of an inch to 3 or 4 inches, and of a corallike appearance. Affected plants show dead and dying stems with yellow leaves.
MEDINILLA. Evergreen shrubs with showy flowers.
Colletotrichum medinillae Rangel. Anthracnose on leaves of *M. magnifica* in Brazil.
Laestadia medinillae Rangel. Large concentrically zoned leaf spots on *M. magnifica* in Brazil.
Phyllosticta lagenitormis Rangel. On leaves of *M. magnifica* in Brazil.
Phyllosticta medinillae Rangel. On leaves of *M. magnifica* in Brazil.
MEIBOMIA. TICK CLOVER. Mostly weedy annual and perennial herbs, partly woody. Some species cultivated for forage.
Aecidium amagense Mayor. Rust on leaves of *M. tortuosa* in Colombia.
Cercosporella atropunctata Rac. Circular to irregular, often confluent, brown spots on leaves of *M. umbellata* in Java.
Phyllachora desmodii P. Henn. Black stromata on leaves of *M. scalpe* and *Meibomia* sp. in India and central Africa.
Physopella meibomiae Arth. Rust on leaves of *M. supina* in Trinidad.
Uredo amagensis Mayor. Rust on *M. tortuosa* in Colombia.
Uredo desmodii-heterocarpi Petch. Rust on leaves of *M. heterocarpa* in Ceylon.
Uredo desmodii-parvifolii Petch. Rust on leaves of *M. parvifolia* in Ceylon.
Uredo desmodii-pulchelli Syd. Powdery yellow-brown rust pustules on leaves of *M. pulchella* in Hongkong.
Uredo desmodii-triquetri Petch. Rust on leaves of *M. triquetra* in Ceylon.
Uromyces capitatus Syd. Rust on leaves of *M. yunnanensis* in China.
Uromyces castaneus Syd. Brown rust pustules on leaves of *M. incana* in Brazil.
Uromyces huallagensis P. Henn. Brown rust pustules on leaves of *Meibomia* sp. in Peru.
Uromyces mexicanus Diet. and Holw. Yellow-brown to black rust pustules on leaf blades and petioles and stems of *M. uncinata* and *Meibomia* sp. in Mexico and Costa Rica.
Uromyces orbicularis Diet. Chestnut-brown rust pustules on leaves of *Meibomia* sp. in Brazil.
Uromyces tenuistipes Diet. and Holw. Brown rust pustules on leaves of *M. strobilacea* and *Meibomia* sp. in Mexico.

MELALEUCA. Ornamental shrubs and trees.
Laestadia melaleucae (Berk.) Sacc. Circular dull-brown leaf spots on *Melaleuca* sp. in Australia.
Phyllachora melaleucae Syd. Shiny black circular to irregular stromata on leaves of *M. spinosa* in Australia.
Physalospora melaleucae (Lév.) Sacc. On leaves of *M. leucadendron* in France.
Phyllosticta leucadendri P. Henn. Circular brown leaf spots on *M. leucadendron* in Australia.
MELASPHAERULA. DIASIA Ag. TWIN SPUR. Small bulbous plants.
Uromyces melasphaerulae Syd. Brown to black rust pustules on orbicular to irregular spots on both surfaces of leaves of *M. graminea* in the Union of South Africa.
MELIA. CHINABERRY. Ornamental trees, also used for windbreaks.
Cercospora congoensis Syd. Small olivaceous leaf spots on *Melia* sp. in the Congo.
Cercospora melicola Speg. Small subcircular whitish leaf spots on *M. azedarach* in Argentina.
Cercospora subsessilis Syd. Leaf spot on *M. azedarach* in Ceylon, India, China, and the Philippines.
Gloeosporium melicola Speg. On leaves of *M. azedarach* in Argentina.
Peronoplasmopara portoricensis Lamk. Irregular, diffuse yellow areas on leaves of *M. azedarach* in Porto Rico, causing premature leaf fall.
Phyllachora meliae Pat. Small circular shiny black stromata on leaves of *M. azedarach* in Indo-China.
Septobasidium acaciae Saw. See Acacia.
Septoria meliae Syd. Small circular white leaf spots on *M. azedarach* in the Union of South Africa.
MELICA. MELIC GRASS. Perennial grasses.
Ascochyta phyllachoroides Sacc. and Malbr. On leaves of *M. altissima* in France.
Cintractia melicae (Sorok.) Det. Smut in ovaries of *M. ciliata* in Central Asia.
Phyllachora melicicola Speg. Tar spot on *M. violacea* in Argentina.
Physalospora montana Sacc. On leaves and stems of *Melica* sp. and *Sesleria caerulea* in Italy, Spain, and Switzerland.
Puccinia helmeriana Bub. Yellow-brown to black rust pustules on leaves of *M. ciliata* and *M. cupani* in Russia, Italy, and Switzerland.
Puccinia rangiferina S. Ito. Black rust on leaves and sheaths of *Melica* sp. and *Calamagrostis arundinacea* in China and Japan.
Puccinia trebouxi Syd. Rust on leaves of *M. ciliata* in Russia.
Septoria melicae Pass. Rufous leaf spots on *M. picta* and *M. uniflora* in Europe.
Septoria simplex (Schroet.) Sacc. On *M. nutans* in Lapland and Sweden.
Uredo jozankensis Ito. Golden rust sori on dark-brown leaf spots on *M. nutans* in Japan.
Urocystis bornmulleri Magn. Smut on leaves and inflorescences of *M. cupani* in Syria.
Uromyces graminis (Niessl.) Diet. See Seseli.
Uromyces sesell-graminis Ed. Fisch. See Arrhenatherum.
Ustilago trebouxi Syd. Dark-brown linear smut sori in leaves of *M. ciliata* and *Triticum* (*Agropyron*) *cristatum* in Russia.
MELILOTUS. SWEET CLOVER. Forage plants.
Cercospora melilotí Oud. Circular to oblong white leaf spots on *M. officinalis* in Russia, Italy, and Holland.
Entyloma melilotí McAlp. Small circular slightly raised pustules producing large, often confluent, patches on leaves of *M. indica* in Australia.
Peronospora melilotí Syd. Downy mildew on leaves of *M. alba*, *M. altissima*, *M. indica*, *M. officinalis*, and *M. parviflora* in India and Europe.
Septoria melilotí (Lasch.) Sacc. Small subcircular pale leaf spots on *M. alba*, *M. officinalis*, and *M. vulgaris* in Italy, Russia, and Germany.
Stagonospora carpathica Baeuml. See Vicia.
Uromyces baeumlerianus Bub. Brown rust pustules on leaves and stems of *M. neapolitana* and *M. officinalis* in Spain and Russia.
MELIOSMA. Trees and shrubs grown for their handsome foliage and large panicles of white flowers.
Aecidium meliosmae-myrianthae P. Henn. and Shir. Rust on leaves of *M. myriantha* and *M. simplicifolia* in Japan and India.
Aecidium meliosma-pungentis P. Henn. and Shir. Rust deforming leaf blades and petioles of *M. pungens* in Japan.
Gophana mirabilis Rac. Rust on leaves of *Meliosma* sp. in Java.
Phakopsora meliosmae Kusano. Yellow to brown rust pustules on leaves of *M. myriantha* in Japan and the Philippines.
Phyllachora meliosmae Racib. Circular black stromata on leaves of *Meliosma* sp. in Java.
Uredo meliosmae Petch. Leaf rust on *M. wightii* in Ceylon.
MELISSA. BALM. Hardy perennial herbs.
Cercosporella sennensis Gz. Frag. Leaf spot on *M. officinalis* in Spain.
Cylindrosporium melissae C. Mass. Irregular leaf spots on *M. officinalis* in Spain and Italy.
Phleospora melissae (Desm.) Parisi. Numerous small angular to irregular brown spots causing leaves to curl up and fall. On *M. officinalis* in Italy, France, and Spain.
Phyllosticta latemarensis Kab. and Bub. On leaves of *M. officinalis* in Hungary.
Phyllosticta melissae Bub. Small circular brown leaf spots on *M. officinalis* in Hungary.
MELITTIS. Perennial herbs, used for border plantings.
Phyllosticta monteilica Sacc. Circular or angular dark-red leaf spots, becoming whitish, on *M. melissophyllum* in Italy.
Septoria melittidis Sacc. and Speg. Whitish indefinite leaf spots on *M. grandiflora* and *M. melissophyllum* in France and Italy.
MELOTHRIA. Slender herbaceous annual or perennial vines.
Puccinia melothriicola Syd. Leaf rust on *M. mucronata* in the Philippines.
Uredo cantonensis Yates. Rust on leaves of *M. indica* in China.
Uredo melothriae P. Henn. Rust on leaves of *M. tomentosa* in Abyssinia.
Uromyces hellerianus Arth. Brown rust sori on *M. guadalupensis* and *M. scabra* in Porto Rico, Cuba, and Guatemala.
MENISPERMUM. MOONSEED. Hardy, attractive semiwoody climbers.
Ascochyta jenissensis Sacc. Subcircular pale-brown leaf spots on *M. dahuricum* in Siberia.
Gloeosporium menispermi Allesch. Anthracnose on leaves of *M. canadense* in Germany and Monaco.
Guignardia menispermi (Speg.) Theiss. and Syd. On leaves of *Menispermum* sp. in Brazil and Paraguay.
Phyllosticta maculiformis var. **menispermi** Sacc. On leaves of *M. canadense* in France.
Septoria menispermi Thuem. Ochraceous leaf spots with gray-brown margins on *M. dahuricum* in Silesia and Russia.

MENTHA. MINT. Strong-scented perennial herbs.
Peronospora stigmaticola Raunk. Downy mildew on flowers of *M. aquatica* and *M. arvensis* in Denmark, Sweden, and Russia.
Phyllosticta menthae Bres. On leaves of *M. arvensis* in Germany.
Physoderma menthae Schroet. On stems and occasionally leaves of *M. aquatica* in Germany.
MENTZELIA. BLAZING STAR. Showy flowered plants, sometimes cultivated.
Coleosporium mentzeliae (Diet. and Holw.) Arth. Powdery golden rust sori on leaves o *M. hispida* in Mexico.
MENZIESIA. Low deciduous shrubs allied to Rhododendron.
Chrysomyxa menziesiae Diet. Numerous brown rust pustules on leaves of *M. pentandra* in Japan.
MERIANA. See Watsonia.
MESEMBRYANTHEMUM. FIG MARIGOLD. Low-growing succulents.
Peronospora mesembryanthemi Verwoerd. Downy mildew on leaves, stems, flower stalks, and calyces of *Mesembryanthemum* spp. in the Union of South Africa.
Puccinia mesembryanthemi McOwan. Golden and black rust pustules on leaves of *M. micranthum* in the Union of South Africa.
Septoria confluens McAlp. Gray-white leaf spots on *M. aequilaterale* in Australia.
MESPILUS. MEDLAR. Woody plants cultivated for fruit.
Ascochyta mespili Pass. Irregular brown, then gray or gray-brown, leaf spots on *M. germanica* in France.
Entomosporium mespili (DC.) Sacc. See Cotoneaster.
Gymnosporangium mespili (DC.) Kern. See Juniperus.
Laestadia mespili Fautr. On leaves of *M. germanica* in France.
Ovularia necans (Pass.) Sacc. See Cydonia.
Phyllosticta mespilicola Rota-Rossi. Circular to irregular large dull-brown leaf spots on *M. germanica* in Italy.
Phyllostictiella mespili (Sacc.) Tass. Subcircular, ochraceous leaf spots with rufous margins on *M. germanica* in Denmark, Malta, and Italy.
Sclerotinia mespili Schell. This fungus causes dark-brown leaf blotches from 1 centimeter in diameter up, as well as brown rot and mummification of the fruit of *M. germanica* and *Cydonia* sp. in Switzerland and Great Britain.
Septoria mespili Sacc. Ochraceous leaf spots with rufous margins on *M. germanica* in France, Malta, and Italy.
METROSIDEROS. IRON TREE. Trees and shrubs planted for their showy flowers.
Phyllosticta metrosideri P. Brun. Circular pale gray-brown leaf spots with red-brown margins on *M. villosa* in Tahiti.
Phyllosticta salicifolia P. Brun. Round to irregular gray leaf spots with brown borders on *M. salicifolia* in France.
A serious disease, due to an unknown cause, destroyed large areas of *M. polymorpha* in Hawaii.
MEUM. Perennial herbs with delicate ornamental foliage.
Aecidium mei Schroet. Rust on leaf blades and petioles of *M. athamanticum* and *M. mutellinum* in central Europe.
Protomyces macrosporus Ung. See Coriandrum.
MEZONEURUM. Large, usually armed, climbing shrubs.
Ravenelia aculeifera Berk. Rust on leaves of *M. enneaphyllum* in Ceylon.
MICHELIA. Trees and shrubs with magnolialike foliage and fragrant flowers.
Phyllachorella michel iae Syd. Black circular stromata on leaves of *M. nilagirica* in India.
Phyllostictiella michel iae (P. Henn.) Tassi. On leaves of *M. fuscata* in Germany.
MICONIA. Tropical trees and shrubs with large, showy, strongly-veined leaves.
Catacauma pululahuensis (Pat.) Theiss. and Syd. Tar spot on leaves of *Miconia* sp. in Brazil.
Catacaumella miconiae (P. Henn.) Theiss. and Syd. Shiny black stromata on leaves of *Miconia* sp. in Brazil.
Cronartium ezenulum Syd. Yellowish-red rust sori on leaves of *M. theezans* in Japan and Brazil.
Cyclotheca miconiae (Syd.) Theiss. Fruiting bodies form on red-brown, then black, spots on lower leaf surfaces of *M. rigidiuscula* in Brazil.
Dothidina fiebrigii (P. Henn.) Theiss. and Syd. Black fruiting bodies on small brown spots on *Miconia* sp. in Paraguay.
Dothidina miconiae (P. Henn.) Theiss. and Syd. Black stromata on leaves of *M. laevigata*, *M. prasina*, and *M. sintenisii* in Porto Rico and Brazil.
Dothidina peribebuyensis (Speg.) Chardon. Small hemispherical dark-brown fruiting bodies on brown spots on leaves of *M. calvescens*, *M. laevigata*, *M. lepidota*, *M. prasina*, *M. sintenisii*, *Lasiandra obscura*, and *Tibouchina multiceps* in Porto Rico, Colombia, and Brazil.
Hysterostromina miconiae (P. Henn.) Theiss. and Syd. Thick dull-black stromata on leaves of *Miconia* sp. in Brazil.
Phaeofabraea miconiae Rehm. On leaves of *Miconia* sp. in Brazil.
Phyllachora miconiicola Speg. On leaves of *Miconia* sp. in Costa Rica.
Physalospora miconiae (Duby.) Sacc. On leaves of *M. calvescens* in Brazil.
Rosellinia bunodes B. and Br. See Citrus.
Septoria miconiae Garm. Brown leaf spots on *M. impetiolaris* and *M. laevigata* in Porto Rico.
MICROCITRUS. Small spiny trees allied to *Citrus*.
Bacterium citri Hasse. See Citrus.
MICROGLOSSA. Shrubs and climbers.
Uredo microglossae Petch. Leaf rust on *M. Zeylanica* in Ceylon.
MICROSTYLIS. See Orchidaceae.
MIKANIA. Climbing hempweed. Shrubs or twining herbs.
Aecidium mikaniae P. Henn. Round dull-brown leaf spots on *M. confertissima* in Brazil.
Apiospora pachyspora Rehm. On leaves of *Mikania* sp. in Brazil.
Ascomycetella punctoidea Rehm. Sessile black stromata on leaves of *M. rismiaefolia* in Brazil.
Cercospora sp. Leaf spot on *M. scandens* in Fiji.
Cercospora mikaniaecola Stevens. Small circular white leaf spots with dark-brown margins on *Mikania* sp. in Porto Rico.
Chrysopsora mikaniae Arth. Yellow rust pustules on leaves of *M. buddleiaefolia* and *Mikania* sp. in Brazil and Bolivia.
Endophylloides portoricensis Whetz. and Olive. Yellow rust sori on leaves of *M. cordifolia*, *M. odoratissima*, and *M. scandens* in Porto Rico, Guatemala, Trinidad, and Brazil.
Gibbera mikaniae (P. H.) Rick. and Theiss. Black stromata on leaves of *Mikania* sp. in Brazil.
Mollisia mikaniae Rehm. Indefinite yellow leaf spots on *M. discolor* in Brazil.
Septoria mikaniae Wint. Circular to irregular leaf spots on *Mikania* sp. in Porto Rico and Brazil. Reported from Texas.

MILIUM. MILLET GRASS. Perennial grass.
Laestadia microspora (Awd.) Sacc. On leaves of *M. effusum* in Germany.
Leptosphaeria nigrans (Desm.) Ces. and De N. See Aira.
Puccinia milii Erikss. Rust on leaves of *M. effusum* and *M. paradoxum* in Sweden, Norway, Denmark and Spain.
Puccinia piptatheri Laegerh. Yellow-brown to dark-brown rust pustules on leaves of *M. multiflorum* in Portugal.
MILLETTIA. Tropical trees producing hard, durable timber.
Bacillus milletiae Kawakami. Irregular, hard, woody knots, 5 to 10 millimeters in diameter and up to 10 centimeters long, for the most part on old stems of *M. floribunda* var. *brachybotrys* in Japan.
Diorchidium woodii (Kalchbr. and Cke.) Syd. Black powdery rust sori on leaves of *M. caffra* in Natal.
Microcyclus angolensis Sacc. and Syd. Irregular black stromata on leaves of *M. thonningii* in Angola.
Phyllachora luzonensis P. Henn. Tar spot on leaves of *M. cavitensis*, *M. merrillii*, and *Derris philippinensis* in the Philippines.
Phyllachora milletiae P. Henn. Black stromata on red-brown leaf spots on *Millettia* spp. in the Congo and Tanganyika.
Phyllosticta milletiae P. Henn. Circular to angular and confluent pale-brown leaf spots on *Millettia* sp. in the Congo.
Physalospora congensis P. Henn. Circular effuse pale-brown leaf spots on *Millettia* sp. in the Congo.
MILTONIA. Orchid. See Orchidaceae.
MIMOSA. SENSITIVE PLANT. Woody or herbaceous tropical plants grown for their showy flowers and feathery foliage.
Cercosporella mimosae Pat. Circular dull-brown leaf spots on *M. floribunda* in Ecuador.
Cercospora sensitivae Speg. Rufous spots on leaves of *M. sensitiva* in Argentina.
Mycosphaerella mimosicola P. Henn. On leaves of *M. asperata* in Brazil.
Phyllachora michelii Speg. Black stromata on indefinite brown leaf spots on *M. procurrens* in Brazil.
Phyllachora rhytismoides (Cda.) Sacc. Tar spot on leaves of *Mimosa* sp. in India.
Puccinia mimosae (Speg.) Syd. Dark cinnamon rust sori on young twigs and inflorescences of *Mimosa* sp. in Argentina.
Ramularia mimosae Stev. and Dal. Indefinite spots, often involving entire area of leaflets of *M. pudica* in Porto Rico.
Ravenelia bahiensis P. Henn. A rust deforming the branches of *M. remansoana* in Brazil.
Ravenelia mainsiana Arth. and Holw. Brown to black rust pustules on leaves of *M. albida* in Guatemala.
Ravenelia mimosae-albidae Diet. Rust on leaves of *M. albida* in Mexico, Costa Rica, and Guatemala.
Ravenelia mimosae-caeruleae Diet. Cinnamon to dark-brown rust pustules on leaves of *M. caerulea* in Mexico.
Ravenelia mimosae-sensitivae P. Henn. Brown rust pustules on leaves of *M. sensitiva* in Colombia and Argentina.
Ravenelia mimosicola Arth. Brown rust pustules on leaves of *M. polyanthoides* and *M. stipitata* in Mexico.
Uromycladium cubense Arth. and Johnst. Leaf rust on *M. asperata* in Cuba.
MIMUSOPS. Tropical trees with milky juice, some producing edible fruit.
Phyllosticta mimusopsidis P. Henn. Red-brown leaf spots on *M. schimperi* in Abyssinia.
Phyllosticta mimusopis Cufino. Circular to irregular white leaf spots on *M. crassifolia* in Italy.
Physalospora placida Syd. Circular gray-brown leaf spots with raised purple-brown margins on *Mimusops* in Portuguese East Africa.
Uromyces mimusops Cke. Brown rust pustules on leaves of *M. caffra* and *M. elengi* in India, Portuguese East Africa, and the Union of South Africa.
MIRABILIS. FOUR-O'CLOCK. Erect herbs.
Aecidium mirabilis Diet. and Holw. Rust sori on irregular yellow leaf spots on *Mirabilis* sp. in Mexico.
Glocosporium mirabilis Bres. Anthracnose on stems of *M. jalapa* in Portugal.
MISCANTHUS. Tall perennial grasses with large terminal, feathery, fan-shaped panicles.
Didymosphaeria striatospora Syd. On stems and leaf sheaths of *M. sinensis* in Japan.
Ephelis japonica P. Henn. Black stromata forming between the compressed spikelets, deforming them. On *M. tinctorius* and *Paspalum thunbergii* in Japan.
Phyllachora miscanthi Syd. Black stromata on leaves of *M. sinensis* and *Miscanthus* sp. in China and the Philippines.
Puccinia erythropus Diet. See Calamagrostis.
Puccinia eulaliae Barcl. Purple-brown rust pustules on leaves of *M. condensatus*, *M. sacchariflorus*, *M. sinensis*, and *Pollinia japonica* in Japan and India.
Puccinia miyoshiana Diet. Brown to black rust pustules on leaves of *M. cotulifer* and *M. sibericus* in Japan and Siberia.
Sclerospora sp. See Saccharum.
Sclerospora philippinensis Weston. See Zea.
Sphaecella miscanthi P. Henn. Black elongate sclerotia formed in ovaries of *M. sinensis* in Japan.
Ustilago kusanoi Syd. Dark-olive smut sori destroying the panicles and rachides of *M. sacchariflora* and *M. sinensis* in Japan and the Philippines.
MITELLA. BISHOP'S CAP. Low perennial herbs with creeping rootstocks.
Puccinia asiatica (Kom.) Syd. Rust on leaves of *M. nuda* and *Tiarella polyphylla* in Asia.
MOLDAVICA. See Dracocephalum.
MOMORDICA. BALSAM APPLE. Annual or perennial tropical climbing herbs, cultivated for ornament and fruit.
Aecidium momordicae Juel. Rust on leaves of *Momordica* sp. in Brazil.
Ascochyta elaterii Sacc. Indefinite yellow spots on leaves of *Ecballium elaterium* (*M. elaterium*) in Italy.
Cercospora elaterii Sacc. On leaves of *M.* (*Ecballium*) *elaterium* in Italy.
Leandria momordicae Rangel. Circular, then confluent, gray leaf spots with narrow pale-brown margins on *M. charantia* in Brazil.
Phyllosticta momordicae F. Tassi. Effuse grayish-white leaf spots on *M. involucrata* in Italy.
Puccinia momordicae Kalchbr. and Cke. Powdery brown rust pustules on leaves of *M. cordifolia* in the Union of South Africa.
Uredo momordicae Petch. Rust on leaves of *M. charantia* in Ceylon.
MONADENIA. Orchid. See Orchidaceae.

MONTANOA. Shrubs, used for subtropical bedding.
Aecidium montanoae Diet. and Holw. Rust on petioles and branches of *Montanoa* sp. in Mex
Uromyces montanoae Arth. and Holw. Cinnamon-brown rust pustules on leave of *M. dumi* and *Montanoa* sp. in Costa Rica.
MONSTERA. Ceriman. Root climbing evergreen tropical aroids with edible fruit.
Neohenningsia brasiliensis P. Henn. On leaves of *Monstera* sp. in Brazil.
MONTIA. Small annual and perennial herbs, one species used as a salad plant.
Cercospora montiae Rostr. Blackened areas, often over entire surface of leaves of *M. minor* Denmark.
Sorosporium montiae Rostr. Black smut sori in leaves and stems of *M. minor* in Denmark.
Tolyposporium junci (Schroet.) Wor. Smut in ovaries, peduncles, and culms of *M. minor* a *Juncus* spp. in Denmark and Germany.
MORAEA. MOREA. Bulbous plants resembling *Iris*.
Phyllosticta macrothecia (Thuem.) Gz. Frag. A leaf spot on *M. grandiflora* in Spain.
Puccinia moraeae P. Henn. Small brown rust pustules on both surfaces of leaves of *M. edulis* in t Union of South Africa.
Uromyces geissorrhizae P. Henn. See Geissorrhiza.
Uromyces moraeae Syd. Rust on leaves of *M. spathacea* in the Union of South Africa.
MORINDA. INDIA MULBERRY. Woody plants.
Cercospora morindae Syd. Circular dull-yellow leaf spots on *M. tinctoria* in India.
Physalospora morindae Koord. Circular or oblong yellow leaf spots on *M. citrifolia* in Java.
MORINGA. HYPERANTHERA Ag. HORSE-RADISH TREE. Tropical ornamental trees.
Puccinia moringae Koord. Rust on pale-yellow leaf spots on *M. olcifera* (*M. pterygosperm* in Java.
MORUS. MULBERRY. Ornamental trees cultivated for their fruit and the leaves used for silkwor rearing.
Aecidium mori Syd. and Butl. Yellow rust sori on leaves of *M. alba* in the Philippines, Indi Java, Japan, Formosa, and China.
Aecidium moricola P. Henn. Rust on leaves of *M. indica* in Java.
Ascochyta miyabei Tan. On branches of *M. alba* in Japan.
Ascochyta mori Maire. On leaves of *M. alba* in France.
Cercospora snelliana Reich. Attacks leaves of *M. alba* in Egypt.
Clasterosporium mori Syd. Brown leaf spots on *M. alba* in China and Japan.
Clasterosporium putrefaciens Frank. On leaves of *M. alba* and *Vitis vinifera* in the Caucasu Mountains.
Coryneum mori Mon. Cankers are produced on trunks and branches, causing a die-back an stunting of trees of *Morus* spp. in Japan and India. It is particularly serious on small trees i nurseries.
Cryptosporium mori Fckl. On leaves of *M. alba* in Germany.
Cylindrosporium maculans Bereng. On leaves of *M. alba* and *M. nigra* in Russia, Poland, Yugo slavia, Albania, and Denmark.
Cytodiplospora mori Miy. Parasitic on twigs of *M. alba* in Japan.
Didymella mori K. Hara. On twigs of *M. alba* in Japan.
Gibberella moricola (Ces. and De N.) Sacc. On branches of *M. alba*, *M. nigra*, and *Broussonetia* sp. in China, Italy, Austria, Hungary, and Germany.
Helicobasidium mompa Tan. and **forma macrosporum** Hara. The fungus attacks the root which become covered with a network of purple-brown mycelial strands. Growth of infected plant is stopped, twigs and branches die back, and any new leaves formed are small. Death of the infected plants finally results. The hosts are *Beta vulgaris*, *Chamaecyparis obtusa*, *C. pisifera*, *Cryptomeri japonica*, *Cydonia japonica*, *Daucus carota*, *Diospyros kaki*, *Edgeworthia chrysantha*, *Hevea brasiliensis Ipomoea batatas*, *Morus* spp., *Photinia glabra*, *Prunus domestica*, *P. pseudocerasus*, *Pyrus japonica Quercus acuta*, *Q. glandulifera*, *Q. serrata*, *Rhus vernicifera*, *Salix* spp., *Sambucus racemosa*, and *Thuy* sp. in Japan, Uganda, and Straits Settlements.
Helicobasidium tanakae Miy. Circular, then large and irregular, velvety, thick brown fungus layers on trunks and twigs of *Firmiana platanifolia*, *Grossularia*, *Juglans*, *Kerria japonica*, *Malus*, *Morus*, *Paulownia tomentosa*, *Pittosporum undulatum*, *Prunus armeniaca*, *P. mume*, *P. salicina Pyrus sinensis*, *Salix*, *Thea sinensis*, *Vitis*, and *Zanthoxylum* in Japan. Said to be parasitic.
Hypochnus cucumeris Frank. See Cucumis.
Massaria phorcioides I. Miy. On twigs of *M. alba* in Japan.
Mycosphaerella maculiformis (Pers.) Schroet. See Acer.
Mycosphaerella mori (Pass.) Fckl. Irregular pale-brown leaf blotches, with red-brown margins and fruit spots on *M. alba*, *M. nigra*, and *M. rubra* in Europe, South America, Japan, India, Uganda, and Canada. Infected leaves turn yellow and fall.
Mycosphaerella morifolia Pass. On leaves of *M. alba* in China and Italy. Reported from Indiana
Ovulariopsis moricola Delacr. Effuse whitish leaf spots on *M. alba* in Madagascar and China.
Phoma mororum Sacc. Attacks twigs of *M. alba* in Italy, "often causing great injury."
Phyllosticta berlesiana Allesch. and var. **socialis** Ferr. Brown leaf spots on *M. alba* in Italy.
Phyllosticta consors Sacc. Brown leaf spots on *M. alba* in Mexico.
Phyllosticta kuwacola K. Hara. The "circle blotch of mulberry" (*M. alba*) in Japan is characterized by minute brown leaf spots, circular to irregular, increasing in size and becoming rufous, then ashen, and concentrically zoned. The leaves are finally destroyed. Diseased twigs become brown and die. On older twigs reddish spots occur, which become black and sunken.
Phyllosticta langarum Ferr. Round to irregular, whitish leaf spots with brown margins on *M. alba* in Italy.
Phyllosticta morifolia Pass. Dirty-gray leaf spots with dull chestnut-brown margins on *M. alba* and *M. nigra* in Russia and Italy.
Phyllosticta osteospora Sacc. Rufous leaf spots on *M. alba*, *M. nigra*, *Fraxinus* sp., *Populu nigra*, and *Rhamnus* sp. in Italy and France.
Physalospora minuta Miy. Slightly raised spots on living twigs of *M. alba* in Japan.
Sclerotinia shiratana P. Henn. Forms sclerotia in fruit of *M. alba* and *M. rubra* in Japan and Formosa.
Sphaeropsis mori Berl. Attacks *Morus* in Italy.
Stagonospora mori I. Miy. This fungus attacks twigs of *M. alba* in Japan, causing them to dis integrate.
Thyrococcum strakoffi Bub. Causes a die-back of twigs and cankers on trunk and limbs of *Morus* spp. in central Europe.
Uncinula mori Miy. Powdery mildew on lower leaf surfaces of *M. alba* in Japan and China.
Ustilago haesendockii West. A very doubtful species of smut reported on roots of *M. alba*, *M. nigra* and *M. rubra* in Belgium, Italy, and Argentina.
A disease due to an unknown cause appears yearly on *Morus* in Indo-China, causing the curling, drying up, and premature fall of the leaves, and forming swellings on the trunk.

MOSCHOSMA. Showy-flowered small shrubs or tall herbs.

Aecidium moschosmatis P. Henn. Rust on petioles and stems of *M. multiflora* in east Africa.

MUCUNA. Annual beanlike vines, grown as forage and green manure crops.

Cercospora mucunae Syd. Brown circular to irregular leaf spots on *M. urens* and *Mucuna* sp. in Brazil and the Philippines. Reported from Alabama.

Sphaerophragmium mucunae Rac. Brown rust pustules on leaves of *Mucuna* sp. in Java.

Uromyces illotus Arth. and Holw. Dark-brown powdery rust pustules on leaves of *M. andreana* in Guatemala.

Uromyces mucunae Rabh. (*Uredo mucunicola* P. Henn.). Brown to black powdery rust pustules on lower leaf surfaces of *M. capitata, M. pruriens, Stizolobium deeringianum, S. lyoni,* and *S. niveum* in the Congo, India, Ceylon, Japan, Formosa, and the Philippines.

MUEHLENBECKIA. CALACINUM Ag. Climbing or erect plants.

Cercospora platensis Speg. On leaves of *M. sagittata* in Argentina.

Glocosporium muehlenbeckiae Briosi and Cav. Anthracnose on pseudo-leaves of *M. platyclada* in Italy.

Puccinia muehlenbeckiae (Cke.) Syd. Brown rust pustules on leaves of *M. adpressa* and *M. gracillima* in Australia.

Septoria muehlenbeckiae F. Tassi. Leaf spot on *M. complexa* in Italy.

Uromyces politus (B. and Br.) McAlp. See Jacksonia.

MULGEDIUM. Annual, biennial, or perennial herbs, allied to *Lactuca.*

Aecidium minussense Thuem. Rust on leaves of *Mulgedium* sp. in Siberia.

Ectostroma mulgedii Thuem. Black, often confluent, spots on stems of *M. sibiricum* in Siberia.

Ovularia mulgedii Bub. Indistinct, irregular yellow leaf spots with brown centers on *M. alpinum* in Yugoslavia.

Puccinia minussensis Thuem. Brown rust pustules on leaves of *M. sibiricum* and *M. tataricum* in Siberia, Russia, Finland, and Sweden.

Puccinia mulgedii Syd. Yellow and brown rust pustules on leaves of *Mulgedium* spp. in Europe and Siberia.

Puccinia tatarica Tranzsch. Rust on stems and leaves of *M. tataricum* in Turkestan and Tibet.

Septoria mulgedii Thuem. Large irregular gray leaf spots with gray-brown margins on *M. sibiricum* in Siberia.

MUSA. BANANA. ABACA. PLANTAIN. Tropical fruit and fiber plants.

Bacillus sp. (?). A bacterial stem and bud-rot of banana and abacá has been reported from the Philippines. It is characterized by a soft black rot of the terminal bud, which extends down the central cylinder and has a disagreeable odor. Entire fields are reported to have been destroyed by this disease.

Bacillus musae Rorer. Causes a serious bacterial disease of the banana and plantain in Trinidad and probably in British Guiana. Lower leaves are first attacked, the petioles giving way, causing the blades to droop and turn yellow. The disease progresses upward, finally involving the terminal bud, after which the plants rot down to the ground. Infected plants show discolored vascular bundles at all stages. Even plants not severely diseased fail to produce fruit.

Bacillus musarum Zeman. Another bacterial disease reported as serious on varieties of bananas in Argentina, Paraguay, and probably Brazil. Leaves of infected plants turn yellow and droop, the petioles lose their turgidity and turn black. In severe cases further terminal growth ceases, and the stem dries out and dies from the apex downward. Suckers may start, but soon succumb. Vascular bundles are discolored and exude a yellow liquid when cut, which turns to red and finally black upon exposure. This disease may be identical with the preceding.

Bacterium celebensis Gäum. This bacterial disease, called the blood disease, is reported as a very serious enemy of the banana (*Musa*) in the Celebes of the Dutch East Indies. Its progress is at first slow, showing as a discoloration of one of the younger leaves, with yellow-brown stripes spreading out from the midrib. The remainder of the plant is attacked suddenly at fruiting time, and within a few days the leaves turn yellow, droop, and the bunch sags down and decays. A reddish slime exudes from the bundles when they are cut across. The fruits turn yellow and become filled with a slimy brownish-red fluid.

Bacterium musae Gäum. A second bacterial disease of the banana (*Musa*) reported from the Dutch East Indies, in which the heart leaf stops growing and the outer leaf sheaths split longitudinally, followed by a premature breaking down and wilting of the leaves. The vascular bundles are discolored.

Bunchy-top. A disease of the banana, plantain, and abacá due to an unknown cause, possibly of the group of infectious mosaics, reported as serious in Australia, Fiji, Bonin Islands, Ceylon, and Egypt. Other hosts are *Canna* and *Saccharum officinarum.* The disease checks the growth of infected plants, the leaves bunching together at the top, due to the stunting of the leaf stalks. Diseased plants never produce fruit, remaining stunted. The leaves are smaller and lighter in color than normal and very brittle, becoming ridged or corrugated with age. The bulbs show small brown or yellow flecks internally. The roots are for the most part dead, except immediately adjoining the base of the plant.

Cercospora musae A. Zimm. Indefinite brown leaf spots on *Musa* in Fiji, Java, and Ceylon. Reported as a "dangerous disease."

Cercospora musarum Ashby. Found on leaves of *Musa* in Jamaica in connection with a black spotting disease.

Coccomyces musae (Lév.) Sacc. On leaves of *Musa* in Central America.

Fusarium cubense E. F. Sm. The "Panama" or wilt disease of *Musa* spp. is the most serious disease know of this important tropical fruit. While only a few varieties, including the Gros Michel, are subject to attack, they are unfortunately the most important ones economically. The disease occurs in Central and South America, Mexico, the West Indies, Hawaii, the Philippines, and probably in India, Java, and Australia. Thousands of acres of banana land have been abandoned, due to the ravages of this disease in Central America. The entire export banana industry of Surinam was destroyed.

A diseased plant first shows a yellowing of the lower or outer leaves and petioles. The transition from normal green to yellow is sudden and proceeds from the margin inward. Diseased leaves wilt rapidly and break over a few inches from the stem and hang downward. Finally, all the leaves are involved, the innermost folded leaf resisting longest. The plant remains with dry brown, hanging leaves for a time until blown over. In severe cases young plants are attacked and remain stunted, finally dying, as do older plants. A longitudinal splitting of the outer leaf sheaths accompanies this stage. Fruit is rarely produced and is always abnormal, small, yellow, and bitter tasting. The vascular bundles are discolored, yellow at first, gradually darkening, and in advanced stages black, the blackening involving all tissues. The disease is commonly carried in offshoots.

Guignardia musae Racib. Irregular reddish-brown leaf spots on *M. paradisiaca* in Java.

Hainesia tallingii Koord. Purple, irregular, sunken leaf spots on *Musa* sp. in Java.

MUSA—Continued.

Heart rot. The abaca plant (*M. textilis*) is seriously attacked by a heart-rot disease which threatens the Manila hemp industry in parts of the Philippines. This disease has doubtfully been attributed to *Fusarium cubense* Sm. The terminal bud of infected plants developes a black rot with a disagreeable saline odor. Various varieties of edible bananas are also subject to the disease.

Laestadia musae Syd. On leaves of *Musa* sp. in the Congo.

Leptosphaeria musarum Sacc. and Berl. On leaves of *M. paradisiaca* in Ceylon and Portuguese St. Thomas.

Marasmius semiustus B. and C. This gill fungus has been reported from the West Indies, Trinidad, Hawaii, and Mauritius as the cause of a root disease of the banana, and an extensive literature has developed. Its status is much the same as *M. sacchari* on *Saccharum*. (q. v.).

Mycosphaerella musae (Speg.) Syd. Leaf spot on *M. cavendishii*, *M. sapientum* and *M. textilis* in Guam and the Philippines.

Phoma musae Carpenter. The "freckle" disease is serious on *M. cavendishii* in Hawaii and has been reported on *Musa* from the Philippines. The fruit spots are at first minute, circular, gray, with indefinite borders, becoming larger and slightly erumpent. Similar spots occur on the leaves, at times causing defoliation. Diseased fruit are undersized, discolored, and ripen unevenly, and even when only slightly attacked are rendered unfit for export.

Phoma musarum Cke. & On *Musa* in Bermuda and Spain.

Phyllachora musae (Kl.) Sacc. On leaves of *Musa* sp. in India and the Congo. Referred by Theissen to *Macrophoma musae* (Sacc.) Berl. and Vogl.

Phyllostictiella gastoni (Roum.) Tassi. On leaves of *M. sapientum* in Haiti.

Sphaerostilbe musarum Ashby. The so-called "bonnygate" disease of Jamaican bananas is attributed to this fungus. Leaves of diseased plants show a narrow zone of brown along the margins, bordered by a yellow band. Inner leaves usually bear broad yellow bands. Suckers grow slowly and seldom form fruit. Old stems may break over, a black-rotted area having formed at the base upon which the yellow fruiting bodies of the fungus appear.

Thielaviopsis paradoxa (De Sey.) v. Hoeh. See Saccharum.

Tylenchus musicola Cobb. Plants of *Musa* of all ages are attacked in the British West Indies, the outer leaves dying and the fruit, if developed, drying up. The roots die, becoming black in color. The outer part of the bulb from which the roots develop likewise becomes black and rotted.

Tylenchus similis Cobb. This nematode attacks the roots of *Musa* spp. and *Saccharum officinarum* in Jamaica, Hawaii, and Fiji. The roots die back, diseased tissue becoming cinnabar-red and finally dark-purple.

Uromyces musae P. Henn. Powdery brown to black elongate rust sori on under leaf surfaces of *Musa* sp. in the Congo.

MUSCARI. GRAPE HYACINTH. Hardy spring flowering bulbs.

Aecidium muscari Link. Forms yellow rust pustules on leaves of *M. comosum* and *M. racemosum* in England, Italy, France, Switzerland, Dalmatia, and Hungary. Said to be distinct from *Uromyces scillarum*.

Heterosporium ornithogali Klotzsch. See Ornithogalum.

Physoderma muscari Poir. On leaves of *M. comosum* in France.

Puccinia liliacearum Duby. See Ornithogalum.

Puccinia lojkaiana Thuem. See Ornithogalum.

Sclerotium sp. A storage rot due to a *Sclerotium* (*Botrytis*) commonly infects imported Holland bulbs of *Muscari* spp. Infected bulbs are matted together by a web of white mycelium in which small brown to black sclerotia appear. Other related bulbous plants may also be attacked.

Septoria muscari P. Brun. Large irregular spots with brown margins on leaves of *M. comosum* in France. This species is probably identical with *S. scillae* West.

Septoria muscari-neglecti Bub. On leaves of *M. neglectum* in Yugoslavia.

Septoria scillae West. Causes a leaf spot of *Muscari* sp., *Scilla bifolia*, and *S. nutans* in Belgium, Italy, Portugal, Spain, and Germany.

Urocystis colchici (Schlecht.) Rab. See Colchicum.

Uromyces ornithogali Lév. See Gagea.

Uromyces scillarum (Grev.) Wint. See Hyacinthus.

Ustilago vaillantii Tul. See Hyacinthus.

MUTISIA. Showy flowered shrubs.

Phyllachora mutisiae Speg. A doubtful species on *Mutisia* sp. in Argentina.

Puccinia crassicutis Syd. Yellow and black rust pustules on *M. clematis* in Bolivia.

Puccinia mutisiae Lagerh. Brown rust pustules on leaves and stems of *Mutisia* sp. in Ecuador

Puccinia mutisiicola Speg. Brown rust pustules on leaves of *M. subspinosa* in Argentina.

Septoria jaffueli Speg. On leaves of *M. latifolia* in Chile.

Septoria mutisiae Speg. Ashen-colored leaf spots on *M. subspinosa* in Argentina.

MYOPORUM. Heathlike shrubs, grown for their small white or purplish flowers.

Bagnisiella endopyria Sacc. On leaves of *M. platycarpum* in Australia.

Septoria myoporí Cke. and Mass. Circular whitish leaf spots with dull-brown margins on *M. insulare* in Australia.

MYOSOTIS. FORGET-ME-NOT. Low perennial or annual herbs.

Aecidium kabatianum Bub. Rust on leaves of *M. sparsiflora* and *M. stricta* in central Europe.

Cylindrosporium myosotidis Sacc. and var. **boraginis** Sacc. Leaf spot on *M. palustris*, *M. scorpioides*, *Borago officinalis* and *Symphytum* sp. in Poland, France, and Spain.

Entyloma canescens Schroet. Smut sori in gray circular leaf spots on *M. caespitosa*, *M. hispida*, *M. intermedia*, and *M. sylvatica* in France, Denmark, Italy, and Germany.

Peronospora myosotidis De By. Downy mildew on leaves of *M. arenaria*, *M. arvensis*, *M. hispida*, *M. intermedia*, *M. paulstris*, *M. sylvatica*, *M. sparsiflora*, *M. stricta*, and *M. versicolor* in Europe.

Puccinia myosotidis Tranzsch. Black rust sori on leaves and stems of *M. sylvatica* in Turkestan.

Puccinia novo-zelandica Bub. Dark-brown rust pustules on leaves of *M. capitata* in New Zealand.

Synchytrium globosum Schroet. See Potentilla.

MYRCIA. Tropical shrubs.

Catacauma myrciae (Lév.) Theiss. and Syd. Dull-black stromata on leaves of *Myrcia* sp. in Brazil.

Puccinia sanguinolenta P. Henn. Dark-brown rust pustules on leaves of *Myrcia* sp. in Brazil.

Uredo myrciae Mayor. Rust on leaves of *M. acuminata* in Colombia.

MYRCIARIA. Jaboticaba. Brazilian fruit trees and shrubs.

Laestadia cambucae Rangel. On leaves of *M. plicati-costata* in Brazil.

Uredo rochiae Putt. Rust on fruit and leaves of *M. jaboticaba* and *M. plicati-costata* in Brazil.

MYRICA. BAYBERRY. Ornamental woody plants with attractive fruits, some edible.

Dothidella koordersii (P. Henn.) Theiss. and Syd. Black stromata on leaves of *M. germanica* in Java.

Dothidina disciformis (Wint.) Theiss. and Syd. Black stromata on leaves of *Myrica* sp. in the Union of South Africa.

MYRICA—Continued.
Microcyclus koordersii P. Henn. Black discoid stromata on lower leaf surfaces of *M. javanica* in Java.
Peronospora rufibasis B. and Br. Downy mildew on brown leaf spots on *M. gale in Great Britian.*
Rhytisma nitidum Lév. Black tar spots on *M. aethiopica* in Abyssinia.
MYRICARIA. FALSE TAMARIX. Shrubs allied to Tamarix.
Marsonia myricariae Rostr. On leaves of *M. germanica* in Norway.
Phyllosticta germanicae Speg. On leaves of *M. germanica* in Italy.
Puccinia involvens (Voss.) Syd. Yellow-brown to black elongate rust pustules on *M. germanica* in France, Belgium, Switzerland, and Austria.
Pyrenopeziza tamaricis (Roum.) Sacc. On branches of *M. germanica*, *Tamarix africana*, and *T. narbonensis* in Argentina, Great Britain, France, and Germany.
MYRISTICA. NUTMEG. Tropical trees with aromatic fruit.
Corticium salmonicolor B. and Br. See Citrus.
Eutype erumpens Mass. See Theobroma.
Fomes lamaoensis Murr. See Hevea.
Marasmius spp. See Theobroma.
Perisporium myristicae P. Henn. Black superficial globular perithecia on leaves of *Myristica* sp. in Java.
Phomopsis sp. Causes a light-brown rot of fruit of *M. fragrans*, preventing seed germination, in Grenada.
Phytophthora sp. An undetermined species of this genus has been reported from Java, attacking the leaves and twigs of *Myristica* (nutmeg).
MYRRHIS. MYRRH. Perennial herbs.
Puccinia chaerophylli Purt. See Chaerophyllum.
MYRSINE. Tropical shrubs and trees with coriaceous leaves and white or yellow flowers.
Chaetothyrium punctiforme Rick. On leaves of *Myrsine* sp. in Brazil.
Corynelia fruticola (Pat.) v. Hoehn. Black carbonous superficial fruiting bodies, more or less completely enveloping fruit of *M. africana* and *Rapanea melanophleos* in China, India, and the Union of South Africa.
Napicladium piriforme Speg. Circular brown leaf spots on *M. floribunda* in Argentina.
Phyllachora myrsinicola Doidge. Black stromata on leaves of *M.* (*Rapanea*) *melanophleos* in the Union of South Africa.
Phyllachora pittieri Theiss. and Syd. Tar spot on leaves of *Myrsine* sp. and *Xylosma salzmanni* in Costa Rica.
Phyllachora sinik-lagaraik Speg. Circular shiny black stromata on leaves of *M. floribunda* in Brazil.
Phyllohendersonia nitida (E. and E.) Tass. On leaves of *Myrsine* sp. in Hawaii.
Scolecodothis circularis (Bres.) Theiss. and Syd. Shiny black stromata on brown leaf spots on *Myrsine* sp. in Brazil.
Uromyces myrsines Diet. See Ardisia.
MYRTUS. MYRTLE. Shrubs grown for their aromatic qualities and attractive foliage, flowers and fruit.
Ascochyta apiospora Cke. and Mass. See Backhousia.
Ascochyta myrticola Maire. and Sacc. Subcircular reddish leaf spots with dark-purple margins on *M. communis* in Italy and Corsica.
Cercospora myrti Erikss. Subcircular purplish leaf spots on *M. communis* and *M. italica* in Scotland, Sweden, Denmark, Spain, and Austria.
Cercospora saccardiana Scalia. Indefinite dark-purple leaf spots on *M. communis* in Sicily.
Depazea myrticola Rabenh. On leaves of *M. communis* in Italy.
Macrophoma nuptialis Bub. Large yellow-brown leaf spots on *M. communis* in Yugoslavia.
Mycosphaerella myrticola Speg. On leaves of *M. chequen* in Chile.
Napicladium fumago Speg. See Eugenia.
Phyllosticta costesi Speg. On leaves of *M. chequen* in Chile.
Phyllosticta nuptialis Thuem. Subcircular dull-yellow to white leaf spots with violet margins on *M. communis* and *M. italica* in Albania, Dalmatia, Yugoslavia, Madeira, and Portugal.
Rehmiodothis myrtincola (Rehm.) Theiss. and Syd. Shiny black stromata on leaves of *Myrtus* sp. in Ecuador.
NAGEIA. See Podocarpus.
NANDINA. Small shrubs with red or white berries.
Phyllosticta nandinae Tassi. Irregular dull-yellow leaf spots on *N. domestica* in Italy.
NAPOLEONA. Shrubs of tropical Africa.
Phyllosticta napoleonae Thuem. Irregular whitish leaf spots on *N. imperialis* in Portugal.
NARCISSUS. Daffodil. Hardy spring flowering bulbous plants.
Bacillus croci Miuza. See Crocus.
Botrytis parasitica Cav. The black sclerotia of this fungus are common on imported *Narcissus* bulbs, and it has doubtless been introduced into all parts of the United States. See under Tulipa.
Cercosporella narcissi Bond. Causes a spotting on both surfaces of the leaves of *N. poeticus* in France.
Coleosporium narcissi Grove. Brown rust pustules on both surfaces of leaves of *N. poeticus* in England.
Fusarium bulbigenus Cke. and Mass. Reported by Massee as a very serious disease of *Narcissus* in Great Britain. The disease has also been reported from Holland. It is characterized by small yellowish to brown leaf spots which finally become covered with pale salmon-colored spore masses. The bulbs also ultimately become infected. Work by recent investigators, however, has quite clearly shown that *Fusarium bulbigenum* is a secondary organism following nematode attack and not the cause of a separate disease.
Phyllosticta narcissi Aderh. Large brown spots without definite margins on leaves of *N. poeticus* in Germany.
Phyllosticta oudemansii Sacc. and Syd. On leaves of *Narcissus* (cultivated varieties) in Holland.
Puccinia schroeteri Pass. Large oblong spots are produced on both surfaces of the leaves, with dull-violet margins. Brown to black rust pustules appear on these spots. The disease occurs in Great Britain, Italy, Austria, Belgium, and Germany on *N. pseudonarcissus* and *N. radiiflorus.*
Ramularia narcissi Chittenden. This disease is characterized by yellow stripes down the foliage and a dwarfing of the entire plant, involving also the flowerstalks. Yellow-brown spots up to 1 centimeter in length also occur on leaves, which later become covered with a fine white powder. The host is *N. poeticus* in variety in England. The fungus may be synonymous with the following species as well as with *Cercosporella narcissi* Boud.
Ramularia vallambrosae Br. and Cav. A brown spotting of leaves and flower stalks in Italy of *N. biflorus, N. odorus, N. poeticus,* and *N. pseudonarcissus.*
Septoria narcissi Pass. Attacks tips of living leaves of *Narcissus* (cultivated varieties) in Italy, Belgium, and Holland.

NARCISSUS—Continued.

Stagonospora narcissi Höll. Produces large irregular brown spots on living leaves of *N. poeticus* in Hungary.

Tylenchus dipsaci Kuehn. (*T. devastatrix* Kuehn.) The eelworm or nematode disease of bulbs (*Narcissus* and *Hyacinthus*) is beyond any doubt the most serious bulb disease known at present. On growing plants the disease is characterized by twisted leaves, with swollen yellow spots and stripes. Affected leaves as a rule remain stunted and may even die. The minute worms causing the disease can be found in these diseased areas. In the bulbs the presence of the nematode is noted by dark rings. The disease occurs in Holland, Great Britain, and France. It has been introduced into the United States with Dutch bulbs and it is known from a few localities. It has proved a serious pest of *Allium* spp., *Avena sativa*, *Fragaria* sp., *Linum usitatissimum*, *Medicago sativa*, *Pisum sativum*, *Secale cereale*, *Solanum tuberosum*, *Trifolium pratense*, and other economic plants in Europe and Japan.

Urocystis colchici (Schlecht.) Rab. See Colchicum.

NARTHECIUM. Bog asphodel. Perennial rhizomatous herbs.

Entyloma ossifragi Rostr. Smut sori on gray, angular leaf spots on *N. ossifragum* in Denmark.

Heterosporium ossifragi Rostr. Produces spots on leaves of *N. ossifragum* in Denmark.

NASTURTIUM. Water-cress. Semiaquatic herbs. Now referred to *Radicula*. (q. v.)

Aecidium nasturtii Hazsl. Rust on leaves of *Radicula* (*Nasturtium*) sp. in Hungary.

Peronospora nasturtii-montani Gäum. Downy mildew on leaves of *N. montanum* in Japan.

Phyllosticta anceps Sacc. Small subcircular ochraceous-yellow leaf spots on *N. amphibium* and *N. anceps* in England and France.

Physoderma magnusiana Krieg. Small oblong spots on leaf blades and petioles of *N. palustre* in Germany.

Septoria uliginosa Speg. Definite subcircular whitish leaf spots on *N. bonaërense* in Argentina.

NELUMBO (*Nelumbium*). Lotus. Water lilies.

Cercosporina nelumbi Hori. On leaves of *N. nucifera* (*N. speciosum*) in Japan and China.

NEMESIA. Flower-garden annuals.

Albugo evansii Syd. White rust on leaves of *Nemesia* sp. in the Union of South Africa.

Cronartium flaccidum (Alb. and Schw.) Wint. See Paeonia.

NEPENTHES. Pitcher plant. Aquatic pitcher plants.

Phyllachora nepenthidis Rac. Circular to elliptical shining black stromata on leaves of *N. melamphora* in Java.

Phyllosticta nepenthacearum F. Tassi. Subcircular dull-brown leaf spots on *N. sanguinea* in Italy.

NEPETA. Catnip. Ground ivy. Hardy perennial herbs.

Erysiphe taurica Lév. See Althaea.

Septoria bornmuelleri Syd. Irregular dirty yellow-brown leaf spots, often destroying entire leaf, on *N. teucrifolia* in Persia.

Septoria catariae Bub. Yellow leaf spots, often with greenish-gray surrounding zones, on *N. beltranii* and *N. cataria* in Spain and Hungary.

NEPHELIUM. Lychee. Litchi. Tropical fruit trees.

Exoascus sp. Leaf curl of *N. litchi* (*Litchi chinensis*) in India.*

Phyllosticta nephelii Delacr. See Durio.

NEPHROLEPIS. Sword fern.

Entyloma nephrolepidis Rac. Smut sori in fronds of *N. biserrata* (*N. acuta*) in Java.

Milesina columbiensis (Diet.) Arth. Rust on fronds of *N. pendula* and *N. rivularis* in Colombia and Porto Rico.

NERIUM. Oleander. Glaucous, evergreen-leafed shrubs.

Ascochyta oleandri Sacc. and Speg. White leaf spots with brown margins on *N. oleander* in Denmark, France, Italy, and Portugal.

Cercospora neriella Sacc. On leaves of *N. oleander* in Italy. Reported from Louisiana.

Phyllosticta glaucispora Delacr. White leaf spots with dull-brown margins on *N. oleander* in Spain.

Phyllosticta nerilcola Brun. Pale-ochraceous leaf spots on *N. oleander* in France.

Phyllosticta nerii-oleandri Stem. Leaf spot on *N. oleander* in the Caucasus.

Septoria nerilcola Pass. On leaves of *N. oleander* in Italy.

Septoria oleandrina Sacc. On *N. oleander* in Bermuda, France, and Italy.

NICOTIANA. Tobacco. Erect, rank-growing herbs with narcotic or poisonous properties.

Ascochyta nicotianae Pass. Irregular dull-brown leaf spots on *N. affinis* and *N. tabacum* in Italy, Sweden, Russia, and possibly some of the West Indies.

Bacillus caulivorus Prill. and Delacr. See Solanum.

Bacillus maculicola Delacr. Bacterial leaf spot of *N. tabacum* in France.

Bacterium pseudozoogloeae Honing. Said to cause black rust disease of leaves of *N. tabacum* in the Dutch East Indies.

Cercospora raciborskii Sacc. and Syd. Circular brown to whitish zoned leaf spots on *N. tabacum* in Java, India, Ceylon, Fiji, Australia, and Uganda.

Colletotrichum nicotianae Averna. Irregular confluent dark-brown anthracnose spots on stems and branches of *N. tabacum* in Brazil.

"Corcova." This disease of tobacco (*N. tabacum*), due to an unknown cause, is reported from Argentina under the native name. Numerous short (1 to 3 millimeters) dark lines, resembling insect burrows, appear on the leaves, uniting to form much longer ones. The leaf tissue between dies and the leaves wilt. Similar lesions from 2 to 6 centimeters long occur on the stems. Unaffected portions of leaves continue to expand, causing swelling and distortion of the leaf blades. The pith of the stem darkens and dries up.

Cytospora nicotianae Averna. Irregular yellow areas on stems of *N. tabacum* in Brazil.

Diplodia cacaoicola P. Henn. See Theobroma.

Macrophoma tabaci Averna. Irregular gray spots on the stems of *N. tabacum* in Brazil.

Oidium tabaci Thuem. A powdery mildew forming circular white powdery spots on leaves of *N. tabacum* in the Union of South Africa, Italy, and Portugal.

Peronospora hyoscyami De By. (*Peronospora nicotianae* Speg.) A downy mildew attacking cotyledons, leaves, and roots of *N. glauca*, *N. tabacum*, and *Hyoscyamus niger* in Europe, Australia, Mexico, and in limited areas in the United States. Causes the serious blue mold disease in Australia.

Phoma solanicola Prill. and Delacr. Irregular yellow, then brown, areas on stems and branches of *N. tabacum* and *Solanum tuberosum* in Brazil, Spain, Italy, and France. The leaves wither when the areas are extensive. Averna-Sacco reports *Plowrightia solanicola* Averna as a perfect stage.

Phyllosticta capsulicola Sacc. and Speg. On capsules of *N. dilatata* in Italy.

Phyllosticta nicotianicola Speg. Ashen leaf spots on *N. acutifiora* in Argentina.

Phyllosticta tabaci Pass. Irregular, often confluent, ashen-colored leaf spots on *N. tabacum* in Italy and Yugoslavia.

Phytophthora melongenae K. Saw. See Solanum.

NICOTIANA—Continued.

Phytophthora nicotianae v. B. de Haan. (*Peronospora nicotianae* Speg.) This downy mildew causes a damping-off of tobacco seedlings. In addition it attacks leaves, roots, and stems of older plants and is destructive in Ceylon, Sumatra, Borneo, Java, Brazil, and Argentina.

Placosphaeria nicotianae Averna. Irregular dark-brown or black patches at bases of stems of *N. tabacum* in Brazil.

Rhizoctonia sp. See Vigna.

Sclerotinia nicotianae Oud. and Konig. Rotten areas, covered with gray mold on leaves and stems, in which black sclerotia form on *N. tabacum* in Holland.

Septoria diversa Sacc. and Syd. Rufous leaf spots with ashen-colored centers on *N. longiflora* in Argentina.

Septoria nicotianae Pat. Brown to white zoned leaf spots on *N. affinis*, *N. rustica*, and *N. tabacum* in Russia, Ecuador, and Jamaica. The frog-eye disease.

Septoria tabacina McAlp. Leaf spot on *N. tabacum* in Australia.

Uredo nicotianae Anast. and Splend. Powdery brown rust sori on leaves of *N. quadrivalvis*, *N. sylvestris*, and *N. tabacum* in Brazil and Italy.

NIDULARIUM. Epiphytic bromeliads related to the pineapple.

Uredo nidularii P. Henn. Linear brown rust pustules on leaves of *N. longiflorum* in Brazil.

NIEREMBERGIA. CUPFLOWER. Tender perennial herbs.

Entyloma nierembergiae Lagh. Smut sori on pale circular leaf spots on *N. spathulata* in Ecuador.

Puccinia nierembergiae Lév. Powdery black rust pustules on leaves of *Nierembergia* sp. in Peru.

NIGELLA. LOVE-IN-A-MIST. Hardy annuals grown for their interesting flowers and seed pods.

Cercospora nigellae Höll. On leaves of *N. arvensis* in Hungary.

NIOBE. See Hosta.

NIPA. Oriental thatch palm with edible fruit. See Palmae.

NITRARIA. NITER BUSH. Low, rigid shrubs.

Aecidium nitrariae Pat. Rust on leaves of *N. tridentata* in Algeria.

NOTHOFAGUS. Ornamental South American trees.

Cyttaria darwini Berk. Causes a rot of the wood of branches of *Nothofagus* sp. in Chile.

Exoascus entomosporus (Thaxt.) Sacc. and Trot. Fruiting layer on lower leaf surfaces of *N. antarctica* var. *bicrenata* and var. *uliginosa* in Patagonia. The leaves are deformed.

Uncinula magellanica Thaxt. Powdery mildew on leaves of *N. antarctica bicrenata* in Patagonia.

Unicinula nothofagi Thaxt. Similar to above species.

NYCTANTHES. NIGHT JASMINE. Trees or shrubs with numerous white fragrant flowers.

Cercospora puttemansii P. Henn. Dull-brown leaf spots on *N. arbor-tristis* in Brazil.

Ramularia sp. Areolate mildew on leaves of *N. arbor-tristis* in India.

NYMPHAEA. WATER LILY (including *Nuphar*). SPATTER-DOCK. Herbaceous aquatics.

Aecidium nymphoides DC. Rust on leaves of *N. alba*, *N. luteum*, and *Limnanthemum nymphoides* in France, Italy, Switzerland, Belgium, and Germany.

Ovulariella nymphaearum (Allesch.) Kab. and Bub. (*Gloeosporium nymphaearum* Allesch.) Subcircular to irregular, often confluent, reddish to gray-brown leaf spots, pale at the centers, on *N. alba*, *N. bouchiana*, *N. capensis*, *N. flava*, *N. luteum*, and *N. ortgiensiana* in Europe.

Phyllosticta hydrophila Speg. Subcircular sunken dull-brown leaf spots on *N. alba* in Italy.

Phyllosticta nymphaeae Pass. On leaves of *N. alba* in Italy.

Physoderma tenue (Nowak.) Karst. On petioles of *Nymphaea* sp., *Acorus calamus*, and *Iris pseudacorus* in Denmark, France, Silesia, Finland, and Germany.

Pythium undulatum H. E. Peters. Downy mildew on leaf blades and petioles of *N. luteum* and *N. alba* in Denmark.

Ramularia nymphaeae Bres. Black circular leaf spots on *N. alba* in England and Germany.

Rhamphospora nymphaeae Cunn. Smut on leaves of *N. lotus*, *N. rubra*, and *N. stellata* in India.

Septoria nupharis Ranoj. On leaves of *N. luteum* in Yugoslavia.

OCHLANDRA. See Bambuseae.

OCHNA. Woody plants.

Cocconia capensis Doidge. On *O. arborea* in the Union of South Africa.

Phyllachora ochnae Pat. and Har. Tar spot on leaves of *Ochna* sp. in Madagascar and the Philippines.

OCIMUM. BASIL. Annual and perennial herbs.

Aecidium leiocarpum Syd. Leaf rust on *O. canum* in India.

Aecidium ocimi P. Henn. Golden-yellow rust sori on circular brown leaf spots on *O. canum*, *O. graveolens*, and *O. suave* in India and Abyssinia.

Coleosporium plectranthi Barcl. See Plectranthus.

Phyllosticta basilici Brun. Gray-brown leaf spots on *O. basilicum* in France.

OCOTEA. Tropical trees.

Cephalosporium tumefaciens Wint. On *O. tristis* in Brazil.

Oligostroma arechavaletae (Speg.) Theiss. and Syd. Black tar spot on leaves of *O. acutifolia* in Uruguay.

Phyllachora ocoteae P. Henn. Irregular black stromata on leaves of *Ocotea* sp. in Brazil.

Phyllachora ocoteicola Stev. and Dalby. Angular dull-black stromata on leaves of *O. leucoxylon* in Porto Rico.

ODONTOGLOSSUM. Epiphytic orchids. See Orchidaceae.

OENANTHE. Aquatic perennial herbs.

Entyloma debonianum Sacc. Smut sori on stems of *O. globulosa* in Malta.

Entyloma oenanthes R. Maire. White smut pustules on leaves of *O. apiifolia* in Corsica.

Physoderma vagans Schroet. See Ranunculus.

Puccinia oenanthes (Diet.) T. Miy. Dark-brown rust pustules on leaves of *O. stolonifera* in Japan.

OENOTHERA. EVENING PRIMROSE. Flower-garden plants with bright-colored flowers.

Cercosporella oenotherae Speg. Circular dull-brown leaf spots on *O. mollissima* in Argentina.

Puccinia luxurians Diet. and Neg. Brown rust pustules on leaves of *O. mutica* in Chile.

Uredo oenothericola Speg. Powdery, dark ferruginous rust pustules on leaves of *O. mollissima* in Argentina.

OLEA. OLIVE. Fruit and ornamental trees.

Ascochyta oleae Scal. On leaves of *O. europaea* in Sicily.

Bacterium olivae Cif. Found in connection with dieback of twigs of *O. europaea* in Italy.

Cercospora cladosporioides Sacc. On leaves of *O. europaea* in Italy and Algeria.

Ceuthospora oleae Kalchbr. and Cke. Circular dull-brown leaf spots on *O. capensis* in the Union of South Africa.

Ceuthospora phacidioides Grev. and var. **oleae** Scalia. On leaves of *O. europaea* in Sicily and Austria.

Coniothyrium oleae Pol. On leaves of *O. europaea* in Italy.

OLEA—Continued.
Cylindrosporium olivae Petri. Large sunken yellowish-purple spots with dark purple margins on fruit of *O. europaea* in Italy.
Cystopsora oleae Butl. Rust on pale-brown leaf spots on *O. dioica* in India.
Gloeosporium olivarum d'Alm. Anthracnose on fruit of *O. europaea* in France, Italy, Spain, Portugal, and Algeria.
Macrophoma dalmatica (Thuem) Berl. and Vogl. Subcircular dull-brown spots on fruit of *O. europaea* in Spain, Italy, and Austria.
Perischizon oleifolium (Kalch. and Cke.) Syd. On leaves of *O. capensis* in the Union of South Africa.
Phyllosticta insulana Mont. Small pale leaf spots with narrow brown margins on *O. europaea* in Spain, Italy, and France.
Phyllosticta oleae Petri. Leaf spots on *O. europaea* in Italy.
Septoria oleae-chrysophyllae Pass. On leaves of *O. chrysophylla* in Abyssinia.
Septoria oleaginea Thuem. Irregular pale-ochraceous leaf spots on *O. europaea* in Austria.
Septoria olivae Pass. and Thuem. On leaves of *O. europaea* in Portugal.
Stictus panizzea De N. Causes the leaf disease of *O. europaea* known as Brusca in Spain and Italy.

OLEARIA. **SHAWIA** Ag. DAISY TREE. Australasian trees and shrubs.
Aecidium olearíae McAlp. Rust on leaves and stems of *O. axillaris* in Australia.
Puccinia olearíae McAlp. Bright orange then brown rust pustules on leaves of *O. argophylla* in Tasmania.
Uredo brownii Syd. Rust on leaves of *O. angustifolia* in New Zealand.

ONCIDIUM. Epiphytic orchids. See Orchidaceae.

ONCOSPERMA. See Palmae.

ONOBRYCHIS. HOLY CLOVER. Perennial forage plants.
Anthostomella sp. Black leaf spots, often confluent, with yellow surrounding zones, on *O. sativa* in Italy.
Ascochyta orobi Sacc. var. **onobrychidis** Prill. and Délacr. On leaves of *O. sativa* in France and Yugoslavia.
Cylindrosporium onobrychidis (Syd.) Died. On *O. sativa* in Europe.
Ovularia bornmülleriana P. Magn. Yellow leaf spots on *O. tournefortii* in Asia Minor.
Peronospora ruegeriae Gäum. Downy mildew on leaves of *O. sativa* in Switzerland.
Phyllachora lathyri (Lév.) Theiss. and Syd. See Lathyrus.
Physalosporina ducellieri Maire. On leaves of *O. caputgallis* in French North Africa.
Ramularia onobrychidis Allesch. Clear light-brown leaf spots with darker margins on *O. sativa* and *O. viciaefolia* in Russia, Germany, Sweden, Yugoslavia, France, and Denmark.
Rhytisma onobrychidis DC. Irregular warty dull-black patches, on leaves of *O. sativa* and *Vicia cracca* in Siberia and France.
Uromyces onobrychidis (Desm.) Lév. Powdery brown rust pustules on *O. arenaria, O. gracilis, O. montana, O. sativa,* and *O. viciifolia* in Europe.

ONOCLEA. Sensitive fern.
Taphrina hiratsuka Nish. Fruiting areas on leaves of *O. sensibilis* in Japan.

ONONIS. REST-HARROW. Annual, biennial, and perennial border and rock-garden plants.
Napicladium ononidis (Auersw.) Sacc. On leaves of *O. repens* in France.
Peronospora ononidis Wils. Downy mildew on leaves of *O. hircina, O. repens,* and *O. spinosa* in Russia, Denmark, Switzerland, Austria, and Germany.
Ramularia winteri Thuem. On leaves of *O. arvensis, O. hircina, O. repens,* and *O. spinosa* in Switzerland, Denmark, and Germany.
Uromyces ononidis Pass. Cinnamon to dark brown rust pustules on leaves of *O. alopecuroides, O. antiquorum, O. campestris, O. columna, O. hircina, O. procurrens, O. repens, O. rotundifolia,* and *O. spinosa* in Europe and Asia Minor.
Uromyces sphaeropleus Cke. Dark-brown rust pustules on *Ononis* sp. in India.

ONOPORDON. COTTON THISTLE. Coarse, woolly, old-world herbs.
Puccinia acanthii Syd. Powdery brown rust pustules on leaves of *O. acanthium* in Spain and Germany.
Puccinia onopordi Syd. Brown rust pustules on leaves of *O. cardunculum* in Syria.
Ramularia onopordi Massal. Subcircular yellow leaf spots on *O. acanthium* and *O. ceratonicum* in Spain, Italy, Yugoslavia, and Germany.
Septoria onopordonis P. Nag. Leaf spot on *O. acanthium* in Russia.

ONOSMA. Herbs grown for their golden-colored flowers.
Aecidium onosmatis Thuem. Rust on leaves of *O. gmelini* and *O. simplicissima* in Siberia.

OPHIOGLOSSUM. ADDER'S-TONGUE.
Helminthosporium crepini West. On leaves of *O. vulgatum* in France, Belgium, and Denmark.
Helminthosporium diedickei P. Magn. On *O. vulgatum* in Germany.

OPHIOPOGON. SNAKE'S-BEARD. Herbs grown for their small bluish or white flowers.
Fusicladium transversum Sacc. Greenish to black areas on leaves of *O. japonicus* in Italy.
Septoria aemula Tassi. Brown leaf spots on *O. spicatus* in Italy.
Septoria ophiopogonis Pass. Brown areas at the tips of leaves of *O. japonicus* in Italy.
Uredo ophiopogonis Syd. Cinnamon-brown rust sori on leaves of *O. japonicus* in Italy.

OPHRYS. Terrestial orchids. See Orchidaceae.

OPULASTER. See Physocarpus.

OPUNTIA. PRICKLY PEAR. Sometimes cultivated for ornament or forage.
Aecidium opuntiae P. Magn. On *Opuntia* sp. in Bolivia.
Ascochyta opuntiae Scalia. On *O. ficus-indica* in Italy.
Didymosphaeria opulenta Sacc. Causes yellow-brown blotches on joints of *O. ficus-indica* in Italy and Malta.
Phyllosticta opuntiae Sacc. and Speg. and var. **microscopicae** Cifer. Whitish spots on *O. ficus-indica* and other species in Italy and Bermuda.
Sclerotium opuntiarum Speg. On *Opuntia* spp. in Argentina.
Septoria ficus-indicae Vogl. On *O. ficus-indica* in Italy.

ORCHIDACEAE.
The diseases attacking the various genera of the *Orchidaceae* are considered under the latter head for reasons similar to those given under *Bambuseae.*
Aecidium alaskanum Trel. This rust forms small, pale to light brown spots on both surfaces of the leaves of *Habenaria* sp. and other orchids in Alaska.
Amerosporium rhodospermum McAlp. On leaves of *Diuris pedunculata* in Australia.
Amerosporium vanillae P. Henn. On leaves of *Vanilla aromatica* in Java.
Ascochyta orchidis Rabenh. On leaves of *Orchis* sp. in Germany.
Ascospora sp. On living leaves of *Evelyna discolor* in Peru.
Asterina liparidis Rac. On leaves of *Liparis* sp. in Java.

ORCHIDACEAE—Continued.

Asterinella epidendri (Rehm.) Theiss. The fungus produces small, black, shield-shaped fruiting bodies on the upper surfaces of leaves of *Epidendrum* sp. in Brazil.

Atichia vanillae (Pat.) V. Hoeh. On leaves of *Vanilla planifolia* in Tahiti.

Bacillus cypripedii S. Hori. This bacterium causes the brown spot disease of orchids which is described as follows: Dirty-cinnamon or light-umber colored spots appear on the leaf-blades. The spots enlarge with great rapidity, so that within a few days entire green leaves can become discolored. After some days the diseased parts become brownish and finally deep chestnut-brown; their surfaces become more or less wrinkled, with loss of luster; their margins diffused, faint in color, and depressed. The lower surfaces of the leaves beneath the spots assume more or less rapidly a pale color and only gradually develop the same color as the upper surfaces. When the spots develop on the lower portions of a leaf, the upper part soon becomes yellowish and dies off without being directly attacked by the bacteria. The rotting also spreads downward into the stem, and if the diseased leaf is not cut off in time, the entire stock will soon be destroyed.

A similar orchid disease called the "brown spot" produces circular brown sunken spots on the upper leaf surfaces. As the spots enlarge the shape becomes somewhat irregular and the periphery more or less undulated, but it is well defined by the deeply sunken area from the surrounding healthy part. The color of the spots differs somewhat according to the different hosts; some spots assume a yellowish-brown, others a deep chestnut-brown color. Inoculation experiments demonstrated the two diseases to be identical, differences being due to varying texture of the leaves of the hosts. Brown rot occurred on succulent leafed species and brown spot on firm, tough-leafed species.

Hori states that the disease is greatly feared by gardeners, since it occurs on the most valuable orchids and spreads very rapidly during the summer season. The host species are: *Cypripedium godefroyae, C. raynaldianum, C. philippinense, Phalaenopsis amabilis, P. aphrodite,* and *P. schilleriana.* The disease has been found in Japan and Formosa on plants in hothouses as well as on plants collected in the wild.

Bacillus farnetianus Pavar. Pavarino has reported this disease as attacking the leaves and pseudobulbs of *Oncidium ornithorhynchum* and *Cattleya crispa* in the botanical garden, Pavia, Italy. The disease is characterized by small, indefinite areas showing as transparent spots which increase in size, becoming visible on both sides of the leaves as brown to black dry, depressed areas.

Bacillus krameriani Pavar. This disease attacks *Ondidium krameriannum* in Italy. At first the diseased areas are transparent, later becoming irregular and finally brown and dry. Leaves and pseudobulbs are attacked.

Bacillus polacii Pavar. This disease causes irregular, black, depressed spots on leaves of *Odontoglossum citrosmum* in Italy.

Bacterium briosianum Pavar. The leaves of *Vanilla planifolia* are said to be seriously attacked by this bacterium in the botanical garden at Pavia, Italy. Small, irregular, pitch-black spots are first seen which soon become lighter in color. The disease progresses rapidly, drying out and killing the leaves and in time involving the entire plant. This disease and the three preceding ones have all been reproduced by artificial inoculations, according to Pavarino.

Bacterium cattleyae Pavar. This disease is said to produce brown spots on the leaves and pseudobulbs of *Cattleya warneri* and *C. loddigesii* in the botanical garden of Pavia, Italy.

Bacterium dendrobii Pavar. Said to cause a withering of leaves and shoots of *Dendrobium nobile* in Italy.

Bacterium oncidii Peglion. This disease produces violet-brown spots on the leaves of *Oncidium* spp. in Italy. The entire leaf area is soon involved, the leaf losing its turgor and falling. Hori states that the causative organism should be known as *Bacillus oncidii* (Peg.) Hori. and that it is closely related to his *B. cypripedii.*

Black rot. A black rot of *Cattleya* leaves and bulbs has been reported from England. It is stated to be "A dreadful disease which carries off plants in a short time." Cause unknown.

Botryodiplodia digitata Maubl. On pseudobulbs of *Cattleya mossiae* in hothouses in France.

Botryosphaeria egenula Syd. and Butl. On leaves of *Cymbidium* sp. in Assam.

Calonectria copelandii P. Henn. On leaves of *Orchidaceae* in the Philippines.

Calospora vanillae Mass. Anthracnose on leaves of *Dendrobium* spp., *Oncidium* spp., and *Vanilla planifolia* in Madagascar, Tahiti, Colombia, West Indies, Seychelles, Reunion, and Mauritius. Said to be the same as *Gnomoniopsis vanillae* Stonem. on *Vanilla* in greenhouses in the United States.

Cercospora angreci Gaill. and Feuill. On leaves of *Angraecum fragrans, Cattleya* sp., and *Odontoglossum crispum* in Mauritius.

Cercospora epipactidis C. Mass. On leaves of *Epipactis palustris* in Italy.

Cercospora odontoglossi Prill. and Delacr. On the under sides of leaves of *Odontoglossum* spp., including *Odontoglossum crispum,* in greenhouses in France. This species is said to cause much damage.

Ceuthospora cattleyae Sacc. and Syd. (*C. minima* Delacr.) This fungus produces dark-brown spots on the leaves of *Cattleya intermedia* in Holland. The leaves ultimately die as a result of the fungus attack.

Chaetodiplodia vanillae A. Zimm. On rotting leaves of *Vanilla* sp. in Java. Probably not distinct from *Diplodia cacaoicola* P. Henn. See Theobroma.

Chytridiaceae (?). A leaf-spot disease of *Cattleya, Dendrobium, Odontoglossum,* and other cultivated orchids has been briefly described by Brierley. It is characterized by a series of concentric zones of green to pale-straw color and brown through purple to black. These vary in diameter from ⅛ to 1½ inches, occurring either as complete circles or segments of circles. The fungus has not yet been identified, but inoculations with diseased material readily reproduce the disease. It is thought that the fungus concerned belongs in the *Chytridiaceae.*

Cilidla epidendri (Rehm) Sacc. and Syd. On leaves of *Epidendrum* sp. in Brazil.

Cladochytrium ollivieri Har. Dark leaf spots on *Orchis incarnata* and *O. laxiflora* in France.

Cladosporium sp. (*C. orchidis* Cke. and Mass. [?]). Forms olive-green blotches, which turn to a brownish-purple on living leaves of *Dendrobium* spp., *Coelogyne* spp., *Oncidium* spp., *Phalaenopsis* sp., and other cultivated orchids in England.

Coleosporium arundinae Syd. This rust produces orange-yellow pustules on the under sides of leaves of *Arundina chinensis* and *A. speciosa* in Java and Formosa.

Coleosporium bletiae Diet. Characterized by brown to golden-yellow rust pustules which fade out to white on the under sides of leaves of *Bletia hyacinthina* in Japan. The fungus has also been reported from one locality in central California on *Phajus wallichii* (*P. grandifolius*), it doubtless having been introduced from Japan.

Coleosporium merrillii P. Henn. Bright-yellow rust pustules on the under sides of leaves of *Spathoglottis chrysantha* and other undetermined orchids in the Philippines.

Colletotrichum dichaeae P. Henn. On leaves of cultivated *Dichaea vaginata* in the botanical Garden at Berlin.

ORCHIDACEAE—Continued.

Colletotrichum effiguratum Syd. Irregular, yellow-brown leaf spots with distinct purple-brown margins on *Paphiopedilum roezlii* in Germany.

Colletotrichum macrosporum Sacc. On *Orchidaceae* in Brazil.

Colletotrichum orchidearum Allesch. On leaves of *Bulbophyllum lobbii, B. longiflorum, Cattleya eldorado, Cymbidium* sp., *Coelogyne mayeriana, Epidendrum macrostachyum, Eria ornata, E. stellata, Eulophia saundersiana, Laelia crispa, Oncidium pulvinatum, Physosiphon loddigesii, Pholidota imbricata, Pleurothallis tribuloides, Spathoglottis plicata,* and *Sarcanthus pugioniformis* in the botanical garden at Munich, as well as in Colombia, Brazil, and the Philippines on native plants.

Colletotrichum orthianum A. Kostlan. On leaves and leaf sheaths of *Cattleya* sp., *Coelogyne cristata, Cypripedium insigne, Dendrobium* sp., *Dendrobium nobile,* and *Vanda coerulea* in the botanical garden at Berlin.

Colletotrichum roseolum P. Henn. On pseudobulbs of *Stanhopea oculata* in the botanical garden at Berlin.

Colletotrichum vanillae Scalia. Forms brown spots on leaves of *Vanilla odorata* and *V. planifolia* in Sicily and Ceylon.

Colletotrichum vinosum P. Henn. On pseudobulbs of *Stanhopea oculata* in the botanical garden at Berlin.

Cylindrina delavarji Pat. On leaves of *Liparis liliifolia* in China.

Diplodina dendrobii Cooke and Mass. On leaves of *Dendrobium speciosum* in Australia.

Diplodia henriquesiana Trav. and Spessa. On pseudobulbs of *Cattleya labiata* in Italy.

Diplodia sobraliae (P. Henn.) Taub. On leaves of *Sobralia sessilis* in the botanical garden at Berlin.

Fusarium sp. Attacks the bases of leaves of *Vanilla planifolia* in Brazil, extending into the stems and forming small, clear, irregular brown spots, which finally become confluent.

Fusicladium vanillae A. Zimm. Appears as a brown fungus layer growing over living leaves of *Vanilla* sp. in Java.

Gloeosporium affine Sacc. This fungus produces white spots on both surfaces of leaves and pseudobulbs of *Bulbophyllum lobbii, Cattleya mendelii, Coelogyne cristata, Masdevallia psittacina, Odontoglossum crispum, Pleurothallis lansbergii, Vanilla* sp., and other cultivated orchids in Italy and Germany.

Gloeosporium beyrodtii Klitz. Produces dark-brown blotches which enlarge rapidly, soon causing the death of leaves of *Vanda coerulea* in Germany.

Gloeosporium bidgoodi Cke. On *Odontoglossum* spp. and *Ooncidium* sp. in hothouses in England.

Gloeosporium bussei P. Henn. On leaves of *Vanilla* sp. in the botanical garden at Berlin.

Gloeosporium cattleyae Sacc. On leaves of *Cattleya mossiae* in France.

Gloeosporium coelogynes Syd. Forms pale spots on leaves of *Coelogyne viscosa* in the botanical garden at Berlin.

Gloeosporium dendrobii Maubl. Characterized by large, pale, ocher-yellow spots on leaves of *Dendrobium farmerii* in France.

Gloeosporium epidendri P. Henn. Large black spots on flower stems of *Epidendrum* sp. in the botanical garden at Berlin and on *Epidendrum ciliaris* in Spain.

Gloeosporium intermedium Sacc. var **epidendri** Sacc. On leaves of Orchidaceae including *Epidendrum* spp., in France.

Gloeosporium laeliae P. Henn. Yellow-brown spots covering entire leaf surfaces of leaves of *Laelia* sp. in the botanical garden at Berlin.

Gloeosporium maxillariae Allesch. On leaves of *Maxillaria rufescens* in the botanical garden at Berlin.

Gloeosporium noackianum Allesch. On leaves of Orchidaceae in Brazil.

Gloeosporium oncidii Oud. Produces brown spots on the leaves and leaf-sheaths of *Maxillaria infestans, M. rufescens,* and *Oncidium ansiferum* in Holland and Germany, and on *Oncidium sphacelatum* in Mexico.

Gloeosporium ornithidii Allesch. Produces large, irregular spots which are ocher-colored and often confluent, on leaves of *Ornithidium densum* in greenhouses in Germany.

Gloeosporium pallidum (Karst.) Hariot. f. **physosiphonis-loddigesii** Allesch. On leaves of *Physosiphon loddigesii* and *Liparis longipes* in greenhouses in Germany.

Gloeosporium phaji Maubl. Produces round spots, which are white at first, becoming black and finally whitish at the centers, on living leaves of *Phaius* spp. and *Phaius wallichii* in greenhouses in France.

Gloeosporium sobraliae Maubl. Forms spots near the tips of the leaves, with a brown-black line of demarcation between healthy and diseased tissue, on *Sobralia* sp. in greenhouses in France.

Gloeosporium stanhopeae Allesch. On leaves of *Stanhopea* sp. in greenhouses in Germany.

Gloeosporium stanhopeicolum P. Henn. On leaves of *Stanhopea* sp. in the botanical garden at Berlin.

Gloeosporium vandopsidis Keissler. On leaves of *Vandopsis* sp. in the Solomon Islands.

Gloeosporium vanillae Cooke and Mass. On leaves of *Vanilla planifolia* in Colombia, Mauritius, Ceylon, and other parts of the world and on *Vanda sanderiana* in the Philippines.

Guignardia microsticta Sacc. On *Cattleya* sp. in France.

Guignardia traversi (Car.) Lind. On leaves of *Vanilla planifolia* in Italy.

Hemileia americana Mass. This rust has been reported on the under sides of leaves of *Cattleya dowiana* and *Oncidium cavendishianum* in greenhouses in England, the plants having come originally from Central America. Powdery golden-yellow pustules are produced. The form on *O. cavendishianum* should be referred to *Hemileia oncidii* Griff. and Maubl.

Hemileia oncidii Griff. and Maubl. (*Uredo behnickiana* P. Henn.) This species produces bright-yellow pustules on the lower leaf surfaces of *Epidendrum vitellinum, Lycaste skinneri, Oncidium crispum, O. dasystalix, O. forbesii, O. marshallianum,* and *O. varicosum* in greenhouses in Brazil, France, Ireland, and Germany.

Hemileia phaji Syd. Characterized by yellow rust pustules on the lower surfaces of leaves of *Phajus* spp. including *P. blumei* and *P. wallichii* in Java. Grove states that these fungi (*Hemileia* spp.) might easily become dangerous parasites if allowed to spread.

Hendersonia epidendri Keissler. On leaves of *Epidendrum bifidum* in the island of St. Croix.

Hypodermium orchidearum Cke. and Mass. This fungus produces spots in groups which are often 1 to 2 inches long, causing the leaves of *Cymbidium eburneum* in Great Britain to turn yellow and die.

Leptostroma orchidearum Mntg. On living leaves of *Cypripedium macranthum* in Siberia.

Leucothyrdium (?) **vanillae** Averna. Irregular black fungus crusts on leaves and stems of *Vanilla planifolia* in Brazil.

Macrophoma cattleyicola P. Henn. Characterized by numerous large, brown-black spots on pseudobulbs of *Cattleya labiata* and *C. percivaliana* in the botanical garden at Berlin.

Macrophoma cattleyicola P. Henn. var. **brassavolae** Keissler. Forms spots on living leaves of *Brassavola* sp. at the Kew gardens, England.

ORCHIDACEAE—Continued.

Macrophoma miltoniae DaCam. On leaves of *Miltonia candida* in the botanical garden, Coimbra, Portugal.

Macrophoma oncidii P. Henn. Said to cause the death of leaves of *Oncidium pulvinatum* in the botanical garden at Berlin. Also reported on leaves of *O. sphacelatum* and *Cattleya* sp. from Mexico.

Macrophoma vanillae Averna. Large irregular, then confluent, ashen leaf spots with dark margins on *Vanilla planifolia* in Brazil.

Melampsora repentis Plowr. (*Caeoma orchidis* Wint.) This rust produces pale yellow spots 1 to 2 centimeters long and generally somewhat elongated, on the under sides of the leaves of *Gymnadenia conopea, G. albida, Habenaria bifolia, H. chlorantha, H. conopea, H. solstitialis, Listera ovata, Ophrys aranifera, O. muscifera, Orchis angustifolia, O. bifolia, O. incarnata, O. latifolia, O. maculata, O. muscula, O. militaris, O. palustris, O. sambucina, O. undulata,* and *Phalaenopsis esmeralda* in British Guiana, Spain, Austria, Denmark, Great Britain, Hungary, Russia, Sweden, Switzerland, and Germany. The uredo and telial stages occur on *Salix repens, S. aurita* and *S. triandra.*

Melanospora coëmansii West. On leaves of *Oncidium* sp. in Belgium.

Melola sp. On living leaves of *Pleurothallis ruscifolia* in Porto Rico and *Laelia albida* in Mexico.

Myxocopron (?) **vanillae** Averna. Black fruiting bodies on extensive confluent ashen leaf spots on *Vanilla planifolia* in Brazil.

Nectria bulbicola P. Henn. On bulbs of *Cyrtopodium* sp., *Gomeza planifolia, Gongora galeata, Maxillaria rufescens, M. variabilis, Oncidium pulvinatum, Polystachya* sp., and *Sophronitis cernua* in the botanical garden at Berlin. The species has been referred to *N. ochroleuca* (Schw.) Bark., a common tropical species.

Nectria bulbophylli P. Henn. On *Bulbophyllum lobbii* in the botanical garden at Berlin.

Nectria goroshankiniana Wahrlich. On roots of *Vanda tricolor* in orchid houses in Russia.

Nectria vandae Wahrlich. On roots of *Vanda suavis* in orchid houses in Russia.

Nectria vanillae A. Zimm. Brown spots on stems and leaves of cultivated *Vanilla* in Java.

Nectria vanillicola P. Henn. On leaves of *Vanilla aromatica* in Java.

Pestalozzia vanillae Averna. Irregular, often marginal, brown leaf spots on *Vanilla planifolia* in Brazil.

Phoma orchidearum F. Tassi On leaves of *Phalaenopsis longifolia* in Italy.

Phoma oncidii Speg. (*Phoma corrientina* Speg.) Forms indefinite white spots on leaves of *Oncidium* sp. in Argentina and *O. papilio* in hothouses in Denmark.

Phoma oncidii-sphacelati F. Tassi. On living leaves of *Oncidium sphacelatum* in Mexico.

Phyllostieta bletiae A. Zimm. On living leaves of cultivated *Bletia hyacinthina* in Austria.

Phyllostieta decidua Ferraris. Characterized by pale ocher-colored spots, circular in shape, with brown margins, on leaves of *Goodyera repens* in Italy.

Phyllostieta donckelaarii Westendorp. Forms large grayish spots with red-brown margins on the under sides of leaves of *Oncidium* sp. in hothouses in Belgium.

Phyllostieta epipactidis Died. Produces dark-brown spots, becoming lighter at the centers, 1 to 1½ centimeters in diameter, on leaves of *Epipactis violacea* in Germany.

Phyllostieta laeliae Keissler. The fungus produces light-colored spots on the leaves and leaf sheaths of *Laelia albida* and *L. furfuracea* in Mexico.

Phyllostieta masdevalliae P. Henn. On leaves of *Masdevallia chimaera* in the botanical garden at Berlin.

Phyllostieta nigramaculans Sacc. On leaves of *Orchidaceae* in Brazil.

Phyllostieta pleurothallidis Keissler. On living leaves of *Pleurothallis longissima* in Costa Rica.

Phyllostieta renantherae Keissler. Forms indistinct, light-colored, subcircular spots on living leaves of *Renanthera storiei* in the Philippine Islands.

Phyllostieta stanhopeae Allesch. The fungus does not form definite spots but attacks the whole leaf, which soon dies. The hosts are *Stanhopea* spp. in Germany.

Phyllostieta valparadisiaca Speg. Forms circular brown spots 1 to 3 millimeters in diameter, on both sides of leaves of undetermined orchids from Chile.

Phyllostieta vanillae P. Henn. Produces large pale-colored spots on leaves of *Vanilla aromatica* in Java.

Physalospora camptospora Sacc. On leaves of Orchidaceae in Brazil.

Physalospora cattleyae Maubl. and Lasn. On *Cattleya mossiae* in greenhouses in France.

Physalospora orchidearum P. Henn. On stems of *Laelia schilleriana* and *Tainia stellata* in the botanical gardens at Berlin.

Physalospora vanillae A. Zimm. On leaves of *Vanilla planifolia* in Java.

Physalospora wildemaniana Sacc. On leaves of Orchidaceae in Brazil.

Phytophthora sp. A very serious disease of the cultivated vanilla (*Vanilla planifolia*) due to a *Phytophthora* species or related fungus is known to occur in Seychelles and various South Sea Islands. There are no published records of the disease and no studies have been made of it.

Phytophthora faberi Maubl. This fungus, which causes one of the most serious diseases known, the black rot, and pod canker of rubber (*Hevea brasiliensis*), cacao (*Theobroma cacao*) and other economic plants, has been reported as attacking *Dendrobium maccarthiae* in Ceylon.

Puccinia aurea Wint. Produces yellow to brown rust pustules on both leaf surfaces of *Monadenia rufescens* in south Africa.

Puccinia cinnamonea Diet. and Holw. Produces scattered cinnamon-colored rust pustules on the lower leaf surfaces of unknown species of Orchidaceae in Mexico.

Puccinia habenariae P. Henn. Produces brown rust pustules on both sides of the leaves and on stems of *Habenaria* spp. in east Africa.

Puccinia orchidearum-phalaridis Kleb. Characterized by yellow, then brown, rust pustules on the lower surfaces of leaves of *Gymnadenia conopea, Habenaria bifolia, H. chlorantha, H. montana, Listera* sp., *L. ovata, Orchis incarnata, O. latifolia, O. maculata, O. majalis, O. mascula, O. militaris, O. morio, O. purpurea,* and *Phalaris arundinacea* in Denmark, France, Great Britain, Holland, Switzerland, Austria, and Germany.

Puccinia satyrii Syd. This rust forms yellow-brown rust pustules on the under sides of the leaves of *Satyrium carneum* in south Africa.

Sclerotium orchidearum P. Henn. Forms globose sclerotia on the stems 0.8 to 1.2 millimeter in diameter, white at first, then yellow, and finally brown-black, smooth, white within. Found on *Dichaea vaginata* and *Vanda tricolor* in the botanical gardens at Berlin.

Septoria codonorchidis P. Henn. On leaves of *Codonorchis poeppigii* in Chile.

Septoria epipactidis Sacc. Characterized by long light-colored spots on the leaves of *Epipactis violacea* and *Epipactis* sp. in Italy and Germany.

Septoria gymnadeniae Thuem. On leaves of *Gymnadenia conopea* in Siberia.

Septoria listerae Allesch. On leaves of *Listeria ovata* in Germany.

Septoria orchidearum West. Produces brown spots on leaves and leaf sheaths of *Coeloglossum viride, Habenaria bifolia, Listera ovata, Orchis latifolia, O. maculata, O. mascula,* and *O. morio* in Belgium, France, and Italy.

ORCHIDACEAE—Continued.

Septoria posekensis Sacc. On leaves of Orchidaceae in Siberia.

Septoria thelymitrae McAlp. On leaves of *Thelymitra aristata* in Australia.

Stigmatodothis palawanensis Syd. On living leaves of *Dendrobium* sp. in the Philippines.

Stilbella bulbicola P. Henn. On leaf bases of *Epidendrum* sp., *Gomeza planifolia*, *Oncidium pulvinatum*, *Sarcanthus pygioniformis*, and *Stanhopea* sp. in the botanical gardens at Berlin.

Tuberculariа sp. Chlorotic or livid irregular areas on stems of *Vanilla planifolia* in Brazil.

Tylenchus olesistus Ritz-Bos. See Begonia.

Uredo aurantiaca Mortem. Yellow rust pustules on the leaves of *Oncidium cavendishianum* in greenhouses in France and Italy.

Uredo carnosa Speg. Rust on *Catasetum fimbriatum* in Brazil.

Uredo cyrtopodii Syd. Brown rust pustules on the under surfaces of the leaves of *Cyrtopodium* sp. and *Bletia* sp. in Brazil, Cuba, and Germany; in the latter case on imported plants.

Uredo epidendri P. Henn. Brown rust pustules on leaves of *Epidendrum* sp. in Brazil.

Uredo guacae Mayor. On *Epidendrum rigidum* and *E. umbellatum* in Ecuador.

Uredo gynandrearum Cda. Rust on leaves of *Habenaria maculosa* and other Orchidaceae in Cuba, Porto Rico, Trinidad, and Central and South America.

Uredo lyneki Berk. Rust on tropical species of *Spiranthes* growing in greenhouses in England.

Uredo nigropunctata P. Henn. Forms yellow rust pustules on the under sides of leaves of *Bletia patula* and *B. purpurea* in Cuba, Porto Rico, Haiti, Bahamas, South America, and Florida and on the leaves of *Stanhopea* spp. in Brazil.

Uredo oncidii P. Henn. Rust on leaves of *Oncidium lanceanum* in Brazil.

Uredo phaji Racib. Forms golden-yellow rust pustules on the lower sides of leaves of *Phaius blumei* in Java. This species is probably identical with *Hemileia phaji* Rac.

Uredo pleurothallidis Keissl. Rust found on plants of *Pleurothallis dinotherii* in greenhouses in Germany.

Uredo pustulata P. Henn. Characterized by brown rust pustules on both surfaces of the leaves of *Stenorrhynchus* spp., including *S. lanceolatus* in Brazil.

Uredo satyrii Mass. Rust on *Satyrium coriifolium* in the Union of South Africa.

Uredo scabies Cooke. Rust on small, irregular spots on both sides of the leaves of *Vanilla planifolia* in Colombia.

Uredo wittmackiana P. Henn. and Klitz. Rust on round yellow or brownish spots on the upper surfaces of leaves of *Epidendrum* sp. in Mexico.

Uromyces citriformis Bab. (*U. thelymitrae* McAlp. [?]) Rust on leaves of *Microstylis* sp. or *Thelymitra* sp. in New Zealand.

Uromyces joffrini Delacr. Reported on the fruits of *Vanilla planifolia* from Tahiti. A doubtful species.

Uromyces microtidis Cooke. Produces irregular groups of yellowish-brown rust pustules on living leaves of *Microstylis perrifolia* and *M. pulchella* in New South Wales, Tasmania, and Chatham Island.

Uromyces orchidearum Ckc. and Mass. This rust is characterized by golden-brown rust pustules, mostly on the upper surfaces of the leaves (aecia hypophyllous), of *Chiloglottis diphylla* and *C. gunnii* in New South Wales, Victoria, and Tasmania.

Uromyces stenorrhynchi P. Henn. Brown rust pustules on the lower surfaces of the leaves of *Stenorrhynchus* sp. in Peru.

Uromyces thelymitrae McAlp. The golden-yellow to chestnut-brown pustules are produced on the leaves and leaf sheaths, either in scattered groups or gregarious, on *Thelymitra aristata*, *T. antennifera*, *T. crinita*, and *T. flexuosa* in Victoria, Australia, and *T. javanica* in Java.

ORCHIS. Terrestrial orchids. See Orchidaceae.

ORIGANUM. MARJORAM. Sweet herbs cultivated for their ornamental flowers and foliage.

Phyllosticta origani F. Tassi. Small circular to irregular leaf spots on *O. heracleoticum* in Italy.

Puccinia caulincola Schneid. See Thymus.

Puccinia rubsaameni P. Magn. Rust on leaves of *O. vulgare* in Denmark, Switzerland, Germany, and Austria.

Septoria origanicola Allesch. and var **majoranae** Bres. Large, irregular, often confluent, brown leaf spots on *O. majorana* and *O. vulgare* in Germany.

ORMOSIA. NECKLACE TREE. Tropical trees.

Puccinia ormosiae Arth. Rust on leaves of *O. krugii* in Porto Rico.

ORNITHIDIUM. Epiphytic orchids. See Orchidaceae.

ORNITHOGALUM. STAR-OF-BETHLEHEM. Dwarf, hardy bulbous plants.

Accidium ornithogalum Bub. Yellow rust pustules on the leaves of *O. tenuifolium* in Moravia. Possibly the same as *Puccinia liliacearum*.

Heterosporium ornithogali Klotzsch. On leaves of *Muscari comosum*, *M. neglectum*, *Ornithogalum* sp., and *Gagea* sp. in Great Britain, Yugoslavia, and Germany. Reported from Washington.

Puccinia kalchbrenneriana De Toni. Yellow rust pustules turning to brown on both leaf surfaces of *O. altissimum* in South Africa.

Puccinia liliacearum Duby. Rufous-brown rust pustules on the leaves of *Belleralia romana*, *Endymion nutans*, *Hyacinthus ramosus*, *Muscari comosum*, *M. racemosum*, *Ornithogalum narbonense*, *O. nutans*, *O. pyrenaicum*, *O. tenuifolium*, *O. umbellatum*, and *Scilla bifolia* in Great Britain, France, Russia, Italy, Belgium, Holland, Hungary, Austria, and Germany.

Puccinia lojkaiana Thuem. Black linear rust pustules on both leaf surfaces of *O. boucheanum*, *O. chloranthum*, *O. nutans*, *O. pyrenaicum*, *O. refractum*, *O. prasandrum*, *O. umbellatum*, *Muscari botryoides*, and *M. racemosum* in France, Italy, Hungary, Austria, India, and Germany.

Puccinia ornithogali-thyrsoidis Diet. Brown rust pustules on stems and leaves of *O. thyrsoides* in the Union of South Africa.

Septoria ornithogalea Oud. Pale linear spots on stems and capsules of *O. pyrenaicum* and *O. umbellatum* in Holland.

Septoria ornithogali Pass. On leaves of *O. umbellatum* in Italy.

Septoria ornithogalicola Höll. Large yellowish spots with indefinite margins on both surfaces of the leaves of *O. boucheanum* in Hungary.

Synchytrium niessii Bub. Small galls, which are dirty-white in color with a brown band, are produced on the leaves of *O. umbellatum* in Austria.

Urocystis ornithogali Koern. Black powdery smut sori on the leaves of *O. umbellatum* in Germany. This species is said not to be distinct from *U. colchici*, which has been reported sparingly on other hosts in the United States.

Uromyces maireanus Syd. This rust forms yellow-brown pustules, which later become dark brown on irregular pale spots on both leaf surfaces of *O. sessiliflorum* in Algeria.

Uromyces ornithogali Lév. See Gagea.

Ustilago pegierae Bub. A smut destroying the anthers of *O. lacteum* in the Union of South Africa.

Uromyces scillarum (Grev.) Wint. See Hyacinthus.

ORNITHOPUS. Leguminous plants, one species cultivated for forage.

Peronospora ornithopi Gäum. Downy mildew on leaves of *O. perpusillum* in Denmark and Germany.

Uromyces ornithopodioides Gz. Frag. Rust on leaves of *O. ichomocarpus* in north Africa.

OROBUS. See Lathyrus.

OROXYLUM. EAST INDIAN TRUMPET FLOWER. Ornamental Asiatic trees.

Phyllosticta oroxylonis P. Henn. On leaves of *O. indicum* in Brazil.

ORTHOSIPHON. Annual or perennial herbs.

Puccinia pallida Syd. Rust on leaves of *Orthosiphon* sp. in the Union of South Africa.

ORYZA. RICE. Annual grasses cultivated for grain.

Achlya prolifera (Nees) De By. Seeds of *O. sativa* in nursery beds are covered by a cottony mycelium and rotted. The disease may also attack young shoots and roots of seedlings; in Formosa.

Ascochyta oryzae Catt. On leaves of *O. sativa* in Italy, Japan, and Brazil.

Cercospora oryzae Miy. Small brown linear spots on leaves and glumes of *O. sativa* in Japan, China, Brazil, Porto Rico, and Cuba. It is not certain that the western form is the same as the oriental. *Cercospora* sp. common throughout Louisiana may be the same.

Chaetophoma glumarum Miy. Whitish areas on glumes of *O. sativa*, hindering formation of grain in Japan.

Chaetophoma oryzae Cav. On sheaths, peduncles, and glumes of *O. sativa* in Italy.

Coniothyrium anomale Miy. White spots with dark-brown borders, mostly at tips and along margins of leaves of *O. sativa* in Japan.

Coniothyrium brevisporum Miy. Irregular white spots finally involving entire leaf area of *O. sativa* in Japan and China.

Coniothyrium japonicum Miy. Brown spots, becoming whitish, commonly at tips and along margins of leaves of *O. sativa* in Japan.

Diplodia oryzae Miy. On leaves and glumes of *O. sativa* in Japan.

Diplodiella oryzae Miy. On leaves and glumes of *O. sativa* in Japan.

Entyloma oryzae Syd. Leaf smut on *O. sativa* in the Philippines.

Gnomonia oryzae Miy. On glumes of *O. sativa* in Japan.

Helminthosporium oryzae v. B. de Haan. The "sesame" spot disease or seedling blight is one of the most serious diseases reported on rice, 10 to 60 per cent of the seedlings often being destroyed. It is known to occur in Japan, Formosa, Java, India, and the Philippines. A similar, if not identical, disease is known from Portuguese East India, Federated Malay States, Italy, and restricted areas in Louisiana. The disease is most destructive to seedlings, but also attacks leaves, culms, and panicles of older plants. In the case of seedlings, the tips of the cotyledons become dark brown and the fungus spreads to new leaves. Numerous small brown spots edged with yellow occur on the leaves. These spots coalesce, becoming irregular, and as a result the leaves die. Diseased culms are yellow or pale brown and the heads either can not push out at all or are bent and distorted. Brown or grayish spots may also occur on the various parts of the head. The disease has been transferred by inoculation to a number of other economic grasses. It has been reported from a restricted area in Louisiana, but it will be desirable to prevent further introductions, especially since other and more virulent strains may gain entrance.

Helminthosporium sigmoideum Cav. Effuse black areas on sheaths, leaves, and stems of *O. sativa* in Italy.

Hendersonia oryzae Miy. Brown spots on glumes and leaves of *O. sativa* in Japan. This disease is said to prevent the development of the grain.

Leptosphaeria iwamotoi Miy. On leaves of *O. sativa* in Japan, Chosen, and Uganda.

Leptosphaeria salvinii Catt. On leaf sheaths of *O. sativa* in Italy.

Melanomma glumarum Miy. Brown, then paler, spots on glumes and culms of *O. sativa* in Japan, China, India, and the Philippines. Causes abortion of the grain.

Metasphaeria albescens Thuem. Small brown-black spots on the leaves of *O. sativa*, increasing rapidly in size and becoming yellowish-brown, in Japan.

Metasphaeria oryzae (Catt.) Sacc. On leaves of *O. sativa* in Italy.

Mosaic. The mosaic disease of sugar-cane has been transmitted to rice experimentally, and might become of importance under favorable conditions.

Mycosphaerella hondai Miy. White spots on leaves of *O. sativa* in Japan and Chosen.

Mycosphaerella malinverniana Catt. On leaves of *O. sativa* in Italy and India.

Mycosphaerella oryzae (Catt.) Sacc. This fungus attacks the leaves of *O. sativa*, checking the development of the grain. It occurs in Japan, Italy, Portugal, and Austria.

Mycosphaerella shiraiana Miy. Gray to black spots on both leaf surfaces and occasionally on glumes of *O. sativa* in Japan and China.

Napicladium jenseanum Rac. Linear red-brown spots on leaves of *O. sativa* in Java.

Nigrospora panici Zimm. See Triticum.

Oospora oryzetorum Sacc. This disease attacks the heads when they are near maturity, a whitish bloom spreading over the panicles. Diseased heads are largely blasted or destroyed. On *O. sativa* in the Philippines.

Ophiobolus cariceti (B. and Br.) Sacc. (*Ophiochaeta graminis* Hara). The take-all disease which attacks wheat and other cereals so seriously in many parts of the world has been reported on rice (*O. sativa*) in Japan and Italy. See Triticum.

Ophiobolus oryzae Miy. On leaves and glumes of *O. sativa* in Japan.

Phaeosphaeria cattanii (Thuem.) Miy. On leaves and stems of *O. sativa* in Italy.

Phacosphaeria oryzae Miy. Brown areas beginning at the margins and tips of leaves and finally involving entire leaf area. Also on glumes of *O. sativa* in Japan.

Phyllosticta japonica Miy. Dark-brown, then whitish, spots on both sides of leaves and on glumes of *O. sativa* in Japan. This disease finally destroys infected leaves.

Phyllosticta miurai Miy. Large areas on leaves become white and the leaves die. On *O. sativa* in Japan and the Philippines.

Phyllosticta necatrix Thuem. On culms, leaves, and leaf sheaths of *O. sativa* in Italy.

Phyllosticta oryzae (Cke. and Mass.) Miy. Dark-brown irregular spots on leaf sheaths in Formosa, Japan, and India.

Pleosphaerulina oryzae Miy. Large areas on leaves of *O. sativa* whitened, in Japan.

Pseudomonas oryzae Ishiyama. This bacterium attacks the leaves, causing the "white speck" disease of *O. sativa* in Japan. The disease also attacks the stems and causes losses up to 20 per cent.

Puccinia graminis Pers. forma **oryzae** Risso. A rust on rice (*O. sativa*) has been reported from Spain and other parts of Europe and named as above. A rust referred to as *Puccinia oryzae* has also been reported, but is doubtless the same. The rust involved here is a strain of the common and widespread black stem rust of cereals. This strain is unknown in the United States.

Pyrenochaeta oryzae Shir. Diseased areas occur on the leaves and glumes of *O. sativa* in Japan. The leaves are greatly weakened and the plants stunted, since root development is poor.

Rhizoctonia destruens Tass. See Solanum.

ORYZA—Continued.

Sclerospora sp. An undetermined species of *Sclerospora* has been reported on *O. sativa* in Japan. The species involved may possibly be *S. macrospora* which occurs to a limited extent in the United States, but this is probably not the case and this downy mildew should be as carefully guarded against as the similar oriental diseases on corn and sugar cane.

Sclerospora macrospora Sacc. See Triticum.

Sclerotium sp. A serious stem-rot disease due to an undetermined species of *Sclerotium* is reported from Java, Japan, China, and the Philippines. From India a similar disease is reported, attacking the leaf-sheaths and causing light-brown areas which ultimately spread over and kill infected plants. These diseases may be referable to one of the following species.

Sclerotium glumale Ces. Gray to black spots on glumes of *O. sativa* in Borneo.

Sclerotium irregulare Miy. Irregular to globular or oval rust-brown sclerotia produced on greenish-gray spots with dark brown margins on leaf sheaths of *O. sativa* in Japan.

Sclerotium oryzae Catt. The bases of stems of diseased plants are discolored at the lowest internodes, with dark-gray mycelium present in the hollow stems, in which appear numerous small, round, black, shining sclerotia. The disease may begin at a node some distance up the stem, involving the leaf sheaths at the same time. Diseased plants are stunted, the culms lodge and little or no grain is formed. This is said to be the most serious of known rice diseases. It occurs in Japan, Italy, India, Ceylon, Portugal, British Guiana, the Philippines, and to a very limited extent in Louisiana and Arkansas. The disease is carried for the most part on seed grain and gained entrance to the United States in this manner. Prohibition of further importations should be effective in preventing continued spread of the disease, provided proper steps are taken to eliminate present centers of infection.

Septoria curvula Miy. On leaves of *O. sativa* in Japan.

Septoria longispora Miy. Gray areas on leaves of *O. sativa* in Japan. Often sufficiently serious to check development of grain.

Septoria miyake Sacc. and Trav. On glumes of *O. sativa* in Japan and the Philippines.

Septoria oryzae Catt. On leaves, leaf sheaths, and glumes of *O. sativa* in Japan, China, Brazil, and Italy.

Septoria poae Catt. On leaves of *O. sativa* in Brazil.

Sphaeronema oryzae Miy. Produces white spots on glumes of *O. sativa* in Japan.

Sphaeropsis japonicum Miy. On glumes of *O. sativa* in Japan.

Sphaeropsis oryzae (Catt.) Sacc. On leaves and leaf sheaths of *O. sativa* in Italy and Brazil.

Tilletia horrida Tak. This smut forms black spore masses in the ovaries, generally concealed by the glumes, but at times forcing them apart. The smut is usually not visible until the grain is threshed. The disease occurs in Burma, India, British Guiana, Indo-China, Siam, Japan, China, and the Dutch Indies. It has been introduced into the United States on seed rice and was at one time serious in the Carolinas, but is said to have been eradicated. It also occurs sparingly in other Southern States, but not in California.

Tylenchus angustus Butl. The "ufra" disease of rice, known only from India, is caused by a nematode and is considered one of the most serious diseases of this crop. The worm attacks the aboveground parts of the plant. The ends of the leaves turn brown and this browning continues until the entire plant is involved. Plants are often stunted, with either withered or normal appearing leaves. Brown stains or lesions appear at one or more of the upper nodes just below the base of the peduncles, the stalks of which become deep brown or black, flaccid, and shrunken. The upper part of the stalk may be swollen into a spindle-shaped swelling composed of the ear and inclosing sheaths or the ear may push its way out. Normal grains as a rule are not produced. The nematodes may be carried on seed grain, or on empty glumes and other diseased plant parts.

Ustilaginoidea virens (Cke.) Tak. The so-called green smut or false smut disease of rice attacks the individual grains which are transformed into hard green masses, more or less twice the size of normal grains. These sclerotia are orange-yellow near the surface and white at the center. The disease occurs in India, Ceylon, Japan, Formosa, China, Sumatra, Malacca, Indo-China, Portuguese East India, Philippines, and Straits Settlements. It has been sparingly introduced into the southern United States, but is not known in California.

ORYZOPSIS. Tufted perennial grasses.

Puccinia oryzopsidis Syd. and Butl. Yellow and dark-brown rust pustules on leaves of *O. molinioides* in India.

Septoria trapezuntica Bub. On leaves of *O. miliacea* in Asia Minor.

OSBECKIA. Tropical herbs and shrubs.

Rehmiodothis osbeckiae (B. and Br.) Theiss. and Syd. Shining black convex stromata on leaves of *O. virgata* in Ceylon.

OSMANTHUS. Ornamental woody plants grown for their handsome foliage and white, fragrant flowers.

Aecidium osmanthi Syd. and Butl. Rust on leaves of *Osmanthus* sp. in India.

Phyllosticta osmanthi Tass. White leaf spots on *O. aquifolius* in Italy.

Phyllosticta osmanthicola Trinch. On leaves of *O. fragrans* in Italy.

Septoria osmanthi Tass. Irregular white spots on leaves of *O. aquifolius* in Italy.

OSMORHIZA. Aromatic herbs with edible roots.

Puccinia philippii Diet. and Neg. Yellow and brown rust sori on leaf blades and petioles of *O. berterii* and *O. glabrata* in Chile and Argentina.

OSMUNDA. Royal fern.

Mycosphaerella collista Syd. On fronds of *O. regalis* in Germany.

OSTEOSPERMUM. Yellow-flowered shrubs.

Ascochyta atro-punctata Wint. Circular, often confluent, yellow leaf spots on *O. moniliferum* in the Union of South Africa.

OSTRYA. HOP HORNBEAM. Ornamental and timber trees.

Exoascus ostryae Mass. Brown spots on leaves of *O. carpinifolia* in Italy.

Gloeosporium ostryae Thuem. Irregular dark-brown anthracnose spots on leaves of *O. virginiana* in Portugal.

Gnomonia ostryae DeN. On leaves of *O. carpinifolia* in Italy.

Mamiania ostryae (P. Henn.) Theiss. and Syd. On *O. japonica* in Japan.

OURISIA. Small herbs used in border plantings.

Puccinia apus Diet. and Neg. Brown rust sori on leaves of *O. racemosa* in Chile.

Puccinia ourisiae Diet. and Neg. Rust on leaves of *O. alpina*, *O. coccinea*, and *O. pygmaea* in Chile.

Puccinia quillensis Diet. and Neg. Powdery rust pustules on leaves of *Ourisia* sp. in Argentina.

OXALIS. Bulbous or tuberous herbs with cloverlike leaves; a few species cultivated for their edible roots or tubers.

Cercosporella oxalidis Grove. Small circular leaf spots on *O. acetosella* in Great Britain.

Cylindrosporium oxalidis Traill. Circular brown leaf spots on *O. acetosella* in Scotland.

OXALIS—Continued.
Mycosphaerella depazeaeformis (Ces. and DeN.) Wakef. Circular, rufous leaf spots on *O. acetosella*, *O. corniculata*, and *O. stricta* in Uganda and Germany.
Ovularia oxalidis Oud. On leaves of *O. tropaeoloides* in Holland.
Phyllosticta oxalidicola Speg. On leaves of *Oxalis* sp. in Argentina. A doubtful species.
Phyllosticta oxalidicola P. Henn. Yellow-brown leaf spots on *Oxalis* sp. in Jamaica.
Puccinia oxalidis Diet. and E. Brown rust pustules on leaves of *O. neuwiedii* and *Oxalis* sp. in Mexico and Brazil.
Septoria oxalidis Lind. Circular ashen leaf spots with dull-brown margins on *O. acetosella* in Denmark.
Septoria oxalidis-japonicae Pat. Sunken rufous to dark-brown leaf spots on *O. japonica* in Tibet.
Stagonospora hygrophila Sacc. On leaves of *O. acetosella* in Great Britain.
Stigmatea depazeaeformis (Auersw.) Schroet. On leaves of *O. acetosella* in Austria and Germany. Possibly a form of *Mycosphaerella depazeaeformis*.
Uredo oxalidis Lév. Leaf rust on *O. corniculata*, *O. corymbosa*, *O. martiana* and *O. stricta* in Eucador, Argentina, France, Switzerland, and Belgium.
Uromyces oxalidis Pazschke. Rust on petioles and scapes of *Oxalis* sp. in Brazil.

OXYCOCCUS. Cranberry. See also Vaccinium.
Ascochyta oxycocci P. Henn. On leaves of *O. macrocarpus* in Germany.
Sclerotinia oxycocci Woron. Gray mold on branches and leaves and soft rot of fruit of *O. palustris* and *O. quadripetalus* in Denmark and Finland.

OXYPETALUM. Herbs and subshrubs.
Puccinia lagoensis P. Henn. Black rust pustules on leaves of *Ozypetalum* sp. in Brazil.
Puccinia oxypetali P. Henn. Stems shortened, swollen, and completely deformed, dark-brown rust pustules developing on the swollen areas and on leaves and flower buds on *O. banksii* in Brazil.
Septoria oxypetali F. Tassi. Small white leaf spots with black margins on *O. caeruleum* in Italy.
Uromyces cabo-friensis P. Henn. Black rust pustules on leaves of *Oxypetalum* sp. in Brazil.

OXYTROPIS. Perennial herbs and shrubs.
Ovularia oxytropidis Jacz. On leaves of *O. pilosa* in Russia.
Peronospora oxytropidis Gaum. Downy mildew on leaves of *O. campestris* in Switzerland.
Phyllosticta oxytropidis Höll. Circular ochraceous leaf spots on *O. pilosa* in Hungary.
Septoria oxytropeos Died. On leaves of *O. pilosa* in Germany.
Septoria oxytropidis E. Rostr. Large ashen leaf spots on *O. lapponica* in Norway.
Uromyces astragali (Opiz.) Sacc. See Astragalus.

PACHYRHIZUS. CACARA. Ag. Yam bean. Jicama. Climbing herbs with large tuberous roots used for food and starch production.
Phakopsora pachyrhizi Syd. Dull-brown rust sori on leaves of *P. angulatus* and *P. erosus* in Japan, Formosa, and the Philippines.

PACOURIA. See Landolphia.

PAEONIA. PEONY. Showy spring and autumn blooming herbaceous perennials.
Aecidium paeoniae Kom. Leaf rust on *P. albiflora* in Russia.
Botrytis paeoniae Oud. This fungus causes a blighting of leaves and buds and a rotting of stems. Black sclerotia are formed on old stems which enable the fungus to live over from season to season. The disease is reported as serious in Great Britain, Holland, Germany, and other parts of Europe. All varieties of cultivated paeonies are subject to attack as well as *Convallaria*. The connection of this disease with the American *Botrytis* blight is in doubt.
Cronartium flaccidum (Alb. and Schw.) Wint. (*C. paeoniae Cast.*) A rust producing yellow-brown to red-brown pustules on the leaves. Infected leaves present the appearance of being studded with long hairs on the under surfaces. One stage of the rust occurs on *Pinus silvestris*. It also occurs on *Asclepias pneumonanthis*, *A. speciosa*, *Cynanchum fuscatum*, *C. nigrum*, *C. purpurascens*, *Crammatocarpus volubilis*, *Impatiens balsamina*, *Nemesia versicolor*, *Paeonia albiflora*, *P. angustifolia*, *P. anomala*, *P. arborea*, *P. arietina*, *P. broterii*, *P. corallina*, *P. daurica*, *P. decora*, *P. edulis*, *P. fimbriata*, *P. formosa*, *P. grandiflora*, *P. herbacea*, *P. hybrida*, *P. moutan*, *P. officinalis*, *P. peregrina*, *P. rosea*, *P. sessiliflora*, *P. sinensis*, *P. splendens*, *P. tenuifolia*, *Pedicularis palustris*, *Schizanthus grahami*, *Tropaeolum canariensis*, *T. lobbianum*, *T. major*, *T. minor*, *Verbena erinoides*, *V. teucrioides*, *V. officinalis*, *Vincitoxicum laxum*, and *V. officinalis* in Europe, Siberia, and Japan.
Leptothyrella paeoniae P. Henn. On leaves of *P. obovata* in Japan.
Leptothyrium paeoniae Vogl. Circular to oblong pale-yellow spots on leaves of *P. arborea* in Italy.
Mycosphaerella moutan Siem. Leaf spot on *P. moutan* in Russia.
Phyllosticta baldensis Massal. A leaf spot producing fungus on *P. decora*, *P. officinalis*, and *P. peregrina* in Denmark, Switzerland, Bulgaria, and Italy.
Phyllosticta moutan Pass. Dark-brown spots on leaves of *P. moutan* in Italy.
Phyllosticta paeoniae S. and P. Produces indefinite spots on leaves of cultivated *Paeonia* varieties, including *P. corallina* in Great Britain.
Puccinia martianoffiana Thuem. Small sunken spots in which appear brown-black rust pustules on both surfaces of the leaves of *P. anomala* in Siberia.
Ramularia paeoniae Vogl. On leaves of *P. peregrina* in Italy.
Ramularia sardoa Sacc. and Trav. On leaves of *P. corallina triternata* in Italy.
Septoria macrospora Sacc. On leaves of *P. officinalis* in Italy and Russia.
Septoria martianoffiana Thuem. Produces a leaf spot on *P. anomala* in Siberia.
Septoria servica Syd. Suborbicular to irregular brown spots with black margins on both surfaces of leaves of *P. decora* in Yugoslavia.

PALA. See Alstonia.

PALIURUS. Woody plants, sometimes grown for their attractive foliage and curiously-shaped fruits.
Ascochyta paliuri Sacc. Yellow-brown leaf spots on *P. aculeatus* in Italy.
Phyllosticta camusiana Sacc. Leaf spots on *P. aculeatus* and *P. australis* in France and Italy.
Phyllosticta paliuri (Lév.) Cke. Black leaf spots on *P. australis* in Russia.
Septoria ascochytella Sacc. Olivaceous or dull-yellow leaf spots on *P. aculeatus* in Italy.

PALMAE. PALMS. The diseases of palms are considered in one group for reasons similar to those explained under *Bambuseae*.
Aphelenchus cocophila Cobb. The red-ring disease of the coconut (*Cocus nucifera*) is serious in British Guiana, Trinidad, Tobago, Grenada, and Panama. It doubtless occurs in other parts of the West Indies and Central America. Externally it is marked by a yellowing and browning of leaves which works from below upwards. This phase takes place fairly rapidly, involving even the unfolded leaves. Green nuts of all sizes and the flowers are shed, the branches of the inflorescences withering. The bud rots. Internally a red zone appears in the stem, extending upward several feet, then breaking into longitudinal streaks, and finally into scattered dots. Similar red spots or streaks occur in the leaf petioles. The roots are discolored and finally die. The reddened tissues are filled with the nematodes which cause the disease.

PALMAE—Continued.

Ascochyta depazeoides (Dur. and Mont.) Tass. On leaves of *Phoenix dactylifera* and *Chamaerops humilis* in Portugal and Algeria.

Ascochyta kentiae Maubl. Elongate pale-brown leaf spots with dark-brown borders on *Kentia* sp. in Algeria.

Ascochytella passerliniana (Thuem.) Tass. On leaves of *Chamaerops* sp. and *Phoenix* sp. in Italy.

Ascochytella pinnarum (Pass.) Tass. On leaves of *Phoenix dactylifera* in Italy.

Auerswaldia decipiens Rehm. A doubtful species of tar-spot fungus on *Arenga mindorensis* and *A. tremula* in the Philippines.

Bacillus coli Esch. See Bud-rot.

Bagnisiopsis bactridis (Rehm.) Theiss. and Syd. Black stromata on leaves of *Bactris* sp. in Brazil.

Bagnisiopsis diplothemii (Rehm.) Theiss. and Syd. Dull-black stromata on leaves of *Diplothemium litorale* in Paraguay.

Botryosphaeria palmigena (B. and C.) Bomm. and Rouss. On leaves of *Chamaedorea* sp. in Costa Rica.

Brachysporium arecae (B. and Br.) Sacc. Leaf spot on *Areca catechu* in India and Ceylon.

Bud rot. A disease of coconuts and other palms, characterized by a soft rot of the bud which destroys the tree, has been reported from nearly all tropical palm-growing regions and constitutes the most serious menace to these valuable plants. Workers on the problem do not agree as to the causative organism, and in fact several are undoubtedly concerned. The form of the disease on *Cocos nucifera* and *Elaeis guineensis* in Cuba, Jamaica, Santo Domingo, Cayman Islands, Trinidad, British Guiana, Surinam, British Honduras, and possibly also in the eastern tropics has been attributed to a strain of *Bacillus coli* Esch.

The disease is first noted through the falling of immature nuts, staining of opening flower spikes to a rich chocolate brown and the dying and bending over of center leaves. A dark wet rot develops at the base of affected spikes and spreads around the leaf sheaths. Finally the entire bud is destroyed by a foul-smelling soft rot, the leaves are brown and dead, hanging downward and all nuts have fallen. The entire top of a diseased tree ultimately falls away, leaving the bare dead trunk. Losses have been very large. For further discussion of bud-rot diseases see *Phytophthora*.

Camarotella astrocaryae (Rehm.) Theiss. and Syd. Black stromata on both leaf surfaces of *Astrocaryum* sp. in Brazil.

Catacauma mucosum (Speg.) Theiss. and Syd. (*Phyllachora cocoicola* P. Henn.) Tar spot on leaves of *Cocos australis* in Brazil.

Cercospora acrocomiae Stevenson. Oval red-brown, then gray, leaf spots with dark-brown margins on *Acrocomia media* in Porto Rico.

Cercospora calamicola P. Henn. Subcircular, black leaf spots on *Calamus caryotoides* in Queensland.

Cercospora licualae Syd. On leaves of *Licuala spinosa* in the Philippine Islands.

Cercospora palmicola Speg. Elliptical, often confluent, leaf spots on *Cocos australis* in Brazil.

Cercospora preisii Bub. On leaves of *Phoenix* sp. in Russia.

Cercospora virens Sacc. On leaves of *Licuala* sp. in Malaya.

Colletotrichum arecae Syd. Anthracnose on leaves of *Areca catechu* in the Philippines.

Colletotrichum paucisetum Petch. Anthracnose on leaves of *Cocos nucifera* in Ceylon.

Coniothyrium cocois P. Henn. Dull-brown leaf spots on *Cocos nucifera* in east Africa.

Coryneum cocoës P. Henn. Dull-brown leaf spots with darker brown margins on *Cocos nucifera* in east Africa.

Didymosphaeria astrocaryi v. Hoeh. On leaves of *Astrocaryum vulgaris* in Guiana.

Diplodia cacaoicola P. Henn. See Theobroma.

Dothidina palmicola (Speg.) Theiss. and Syd. (*Auerswaldia palmicola* Speg.) Irregular to linear brown-black stromata on leaves of *Acrista monticola*, *Cocos yatay*, *Diplothemium litorale*, *Phoenix dactylifera*, and *Trithrinax brasiliensis* in Porto Rico, Brazil, Argentina, Paraguay, and Uruguay.

Exosporium durum Sacc. The leaves of *Cocos nucifera* in the Philippines turn yellow and become covered with small spots on which occur numerous dark-colored raised fruiting bodies.

Exosporium pulchellum Sacc. Numerous small, dark-colored, raised fruiting bodies on leaves of *Areca catechu* in the Philippines.

Fomes lamaoensis Murr. See Hevea.

Fomes lignosus Klotzsch. See Hevea.

Fusicladium livistoniae Karst. Black fungus layers on petioles of *Livistona sinensis* in Denmark.

Gloeosporium catechu Syd. Anthracnose on leaves of *Areca catechu* in the Philippines.

Gloeosporium coccophilum Wakef. Anthracnose on leaves of *Cocos nucifera* in Ceylon.

Gloeosporium ptychospermatis P. Henn. Large white spots on leaves of *Ptychosperma* sp. in Java.

Graphiola applanata Syd. and Butl. Small black, hard, raised fruiting bodies on leaves of *Phoenix sylvestris* in India.

Graphiola arengae Rac. Hard raised fruiting bodies on circular yellow leaf spots on *Arenga ambong* and *A. saccharifera* in Java and the Philippines.

Graphiola borassi Syd. and Butl. On leaves of *Borassus flabelliferus* in India.

Graphiola cocoina Pat. Small black, raised, hard fruiting bodies on small brown-leaf spots on *Cocos nucifera* in Fiji and Gambier Islands.

Graphiola cylindrospora Syd. On leaves of *Livistona chinensis* in the Philippines.

Graphiola macrospora Penz. and Sacc. Globular black, hard fruiting bodies on leaves of *Calamus* sp. and *Plectocomia* sp. in Java.

Haplosporella asterocaryi P. Henn. On leaves of *Astrocaryum* sp. in Brazil.

Helminthosporium coryphae Syd. On leaves of *Corypha elata* in the Philippines.

Helminthosporium incurvatum Ch. Bern. On leaves of *Cocos nucifera* in Ceylon and Java.

Helminthosporium philippinum Sacc. On *Arenga tremula* in the Philippines.

Heterosporium chamaeropis Oud. On leaves of *Chamaerops excelsa* in Holland.

Heterosporium minutulum C. and M. On leaves of *Chamaerops humulis* in Great Britain.

Hysterostomella elaeicola Maubl. Irregular black carbonous fruiting bodies in pale sunken leaf spots on *Elaeis guineensis* in Dahomey.

Laestadia cocophila (Cke.) Sacc. On leaves of *Cocos nucifera* in British Guiana.

Lembosia diplothemii P. Henn. On leaves of *Diplothemium maritimum* in Brazil.

Leptosphaeria briosiana Pöll. On leaves of *Jubaea spectabilis* in Italy.

Leptosphaeria molleriana d'Alm. and da Cam. On leaves of *Cocos romanzoffiana* in Portugal.

Leptostroma phoenicis Oud. and Fautr. On leaves of *Phoenix dactylifera* in France.

Meliola furcata Lév. Black superficial fungus patches on leaves of *Acrista monticola* and *Coccothrinax alta* in Porto Rico.

Melittosporiopsis gigantospora Rehm. On leaves of *Rhaphidophyllum* sp. in the Philippines.

Melittosporiopsis pachycarpa Rehm. On leaves of *Rhaphidophyllum* sp. in Chile.

Merrillopeltis hoehnelii Rehm. On petioles of *Arenga mindorensis* and *A. saccharifera* in the Philippines.

PALMAE—Continued.

Metasphaeria cocogena (Cke.) Sacc. On leaves of *Cocos nucifera* in Demerara.

Mollisia copelandi Rehm. On leaves of *Caryota* sp. in the Philippines.

Mycosphaerella sp. Leaf spot on *Roystonea regia* in Cuba.

Mycosphaerella chamaeropis Trav. Irregular ochraceous-gray leaf spots with broad purple margins on *Chamaerops humilis* in Italy.

Mycosphaerella elaeidis Beeli. Large irregular gray leaf spots on Elaeis sp. in Belgian Congo.

Mycosphaerella gastonis (Sacc.) Lind. On leaves of *Cocos nucifera* in Samoa, Tahiti, Ceylon, and the Philippines.

Mycosphaerella ptychospermatis Rehm. On leaves of *Ptychosperma macarthurii* in the Philippines.

Ovularia palmicola Pantanelli. On *Chamaerops* sp. and *Pritchardia* sp. in Italy and Tripoli.

Palawania grandis (Niessl.) Syd. Black stromata on leaves of *Calamus* sp. and *Oncosperma horrida* in India, Java, and the Philippines.

Parmulinea rehmii (Maubl.) Theiss. and Syd. Dull-black stromata on yellow indefinite leaf spots on *Bactris* sp. in Brazil.

Pestalozzia brevipes Prill. and Delacr. Irregular yellow leaf spots on *Corypha australis* and *Kentia chamaerops* in France.

Phaeochora acrocomiae (Mont.) Theiss. and Syd. Black stromata on leaves of *Acrocomia sclerocarpa* and *A. yatay* in French Guiana, Brazil, and Paraguay.

Phaeochora chamaeropis (Cke.) v. Hoeh. Shining black stromata on brown leaf spots on *Chamaerops humilis* in Morocco and Spain.

Phaeotrabutiella perisporioides (Sacc.) Theiss. and Syd. Black stromata on circular to irregular leaf spots on *Phoeniz dactylifera* in Oceania.

Phomatospora migrans Rehm. Large irregular, concentrically zoned areas on leaves of *Arenga saccharifera* in the Philippines.

Phomopsis palmicola (Wint.) Sacc. and var. **arecae** Sacc. Extensive irregular dead areas on leaves of *Areca catechu* in the Philippines.

Phyllachora calamigena (B. and Br.) Sacc. Brown stromata on brown leaf spots on *Calamus rudentum* in Ceylon.

Phyllachora palmicola Speg. Black stromata on long yellowish leaf spots on *Copernicia cerifera* and *Trithrinax brasiliensis* in Brazil and Argentina.

Phyllachora roystoneae Johnst. and Brun. Conspicuous black carbonaceous stromata on midribs of leaves of *Roystonea regia* in Cuba.

Phyllosticta sp. Leaf spot on *Caryota urens* in India.

Phyllosticta chamaeropis Pöll. Oblong brown leaf spots on *Chamaerops* sp. in Italy.

Phyllosticta cocoës Allesch. Small oblong whitish leaf spots on *Cocos* sp. in Brazil.

Phyllosticta cocoina Sacc. Subcircular leaf spots on *Cocos nucifera* in Tahiti.

Phyllosticta cocophila Pass. Oblong to irregular whitish leaf spots with dull-brown margins on *Cocos flexuosa* and *C. nucifera* in Italy and the Philippines.

Phyllosticta cocos Cke. Irregular pale-brown leaf spots on *Cocos nucifera* in India and Italy.

Phyllosticta daemonoropsis Sacc. On leaves of *Daemonorops* sp. in Malaya.

Phyllosticta palmigena Sacc. On leaves of *Dictyosperma alba* in Malaya.

Phyllosticta sabalicola Szabo. On petioles of *Sabal blackburniana* in Hungary.

Physalospora calami Syd. Oblong, white leaf spots with brown margins on *Calamus tenuis* in India.

Phytophthora arecae (Colem.) Pethyb. The "koleroga" disease of the betel palm (*Areca catechu*) is serious in India. The fungus has also by inoculation been found capable of causing a rot of potato (*Solanum tuberosum*) tubers. The leaves of diseased palms turn yellow and droop, the flowers and immature fruit fall, and the flower stalks blacken and rot. This rot often spreads to the leaf sheaths and apical bud. The disease is one of the bud-rot type.

Phytophthora faberi Maubl. This downy mildew fungus has been found in Porto Rico, Jamaica, Ceylon, and the Philippines, causing typical bud rot of *Cocos nucifera* and other palms. The symptoms given for bud rot under that heading above apply here. The fungus has also been recently reported from limited areas in Florida in connection with the death of coconut palms. See also *Theobroma* for a further account of the fungus.

Phytophthora melongenae K. Saw. See Solanum.

Phytophthora palmivora Butler. The bud-rot disease of coconut (*Cocos nucifera*) and Palmyra palm (*Borassus flabellifer*) in India, Ceylon, Fiji, and Jamaica is attributed to this species. With this disease the inner leaves turn brown and break over and the heart leaf can usually be drawn out, having been rotted off at the base. All the young leaves turn yellow and the center column falls out, leaving a ring of the older leaves which may persist for some time. Young nuts cease growing. During this early stage brown sunken spots occur at the bases of young leaves and extend through to the bud, which soon becomes a pasty mass with an offensive odor. The inner and outer faces of the spots on leaf bases may show a white mildew. Development of the disease continues, the leaves all falling off and the tree dying.

Phytophthora parasitica Dastur. See Ricinus.

Placostroma diplothemii Syd. Black shining stromata on leaves of *Diplothemium maritimum* in Brazil.

Pleospora kentiae Maubl. On leaves of *Kentia* sp. in Algeria.

Puccinlopsis guaranitica Speg. Small black fruiting pustules on brown leaf spots on *Cocos yatay* in Brazil.

Ramularia thrinciae Rth. On leaves of *Thrinax radicaulis* in Madeira.

Rhipidocarpon javanicum (Pat.) Theiss. and Syd. On leaves of *Nipa fruticans* in Java and the Philippines.

Septoria calami P. Henn. Pale indefinite leaf spots on *Calamus caryotoides* in Queensland.

Septoria cocoes Petch. On leaves of *Cocos nucifera* in Ceylon.

Septoria martineziae Thuem. Irregular dull-brown leaf spots on *Martinezia caryotaefolia* in Portugal.

Septoria palmarum Sacc. On leaves of *Corypha elata*, *C. umbraculifera*, and *Latania borbonica* in Italy and the Philippines.

Sphaerodothis arengae (Racib.) Shear. Black, shiny, irregular stromata on leaves of *Arenga obtusifolia*, *A. saccharifera*, *Caryota propinqua*, and *Caryota* sp. in Java and the Philippines.

Stagonospora kentiae Maubl. Whitish leaf spots with brown margins on *Kentia* sp. in Algeria.

Thielaviopsis paradoxa (De Seyn.) v. Hoeh. Causes the "stem-bleeding" disease of *Cocos nucifera* in Ceylon and other parts of the oriental Tropics. See Saccharum for further discussion.

Trabutia atroinquinans (Wint.) Theiss. and Syd. Black circular to elliptical stromata on leaves of *Mauritia flexuosa* in Brazil.

PALMAE—Continued.

Ustilago dactylicola Speg. In fruit of *Phoenix dactylifera* in central Africa. Beyond doubt only *Aspergillus niger* again. *Ustilago phoenicis* Cda. reported from Egypt on the same substratum is doubtless also the same.

Zukalia stuhlmanniana P. Henn. Black superficial fungus layers (sooty mold) on leaves of *Cocos nucifera*, *Phoenix dactylifera*, and *Ravenala madagascariensis* in Zanzibar and Tanganyika.

The "baloud" or "white" disease attacks *Phoenix dactylifera* in Algeria, often destroying the trees. The cause is unknown. Other diseases of the trunks, leaves, and fruit of this host are also reported from Algeria, the causes likewise being unknown.

PANAX. GINSENG. Hardy perennials with aromatic roots.

Bacterium araliavorus Uyeda. Causes a red rot of stems and roots of *P. quinquefolium* in Korea.

Bacterium panaxi Nak. and Tak. Produces an amber-colored rot in roots and a brown rot of stems of *P. quinquefolium* in Japan and Korea

Colletotrichum panaciola Nak. and Tak. Leaf blight of *P. quinquefolium* in Korea.

Phoma panaciola Nak. and Tak. Black dry rot of roots of *P. quinquefolium* in Korea.

Phoma panacis Nak. and Tak. Produces brown to silvery-gray spots and cankers on stems of *P. quinquefolium* in Korea.

Phyllosticta panax Nak. and Tak. Brown leaf spots on *P. quinquefolium* in Korea; called the "snake-eye" disease.

Porta hypobrunnea Petch. See Hevea.

Rosellinia arcuata Petch. See Thea.

Rosellinia bunodes B. and Br. See Citrus.

Uredo panacis Syd. Dull-yellow rust pustules on leaves of *P. pseudoginseng* in India.

PANCRATIUM. Summer and winter flowering bulbs.

Aecidium amaryllidis Syd. and Butl. Leaf rust on *Pancratium* sp. in India.

PANDANUS. SCREW PINE. Tropical woody plants and small trees remarkable for their aerial roots and the spiral arrangement of the long leaves.

Anthostomella pandani (Rabh.) Sacc. On leaves of *P. furcatus* in India.

Elsiodothis pandani Syd. Black opaque stromata on leaves of *P. luzonensis* in the Philippines.

Leptosphaeria pandani Tass. On leaves and sheaths of *P. utilis* in Italy.

Phyllosticta pandanicola Young. Grayish-white to light-brown spots on leaves of *Pandanus* sp. in Porto Rico.

Pirostoma farnetianum Póll. On leaves of *P. utilis* in Italy, causing much damage.

Pienodomus inaequalis Sacc. and Trott. On leaves of *P. utilis* in Italy.

Stigmatea pandani Pat. Circular dull-brown leaf spots on *P. odoratissimus* in Gambier Islands.

PANICULARIA. See Glyceria.

PANICUM. GUINEA GRASS. PARA GRASS. BROOMCORN MILLET. A very large genus of annual and perennial grasses. Many are weeds, but others of importance as grain and forage plants.

Acrothecium lunatum Wak. Small brown leaf spots on *P. frumentaceum*, *Eleusine coracana*, and *Setaria italica* in India.

Balansia claviceps Speg. Forms sclerotia in spikelets of *P. carinatum* and *P. nodosum* in the Philippines and Argentina.

Balansia paspali P. Henn. Forms sclerotia in spikelets of *P. amplexicaule* in the Philippines.

Balansia trinitensis Cke. and Mass. Hard black globose stromata in place of ovaries on *P. palmifolium* in Trinidad.

Balansiella pulvinula (B. and Br.) Petch. Forms white to honey-colored stromata in young shoots of *Panicum* sp. in Ceylon, arresting their development.

Beniowskia graminis Rac. On leaves of *P. nepalense* in Java.

Chaetodiplodina graminicola Speg. On leaves of *P. laxum* in Argentina.

Chlorochytrium graminis Buesgen. See Festuca.

Cerebella antidotale Subra. Black corrugated fungus masses replacing ovaries of *P. antidotale* in India.

Cerebella burmanensis Subra. Black corrugated fungus masses in ovaries of *P. setigerum* in India.

Cerebella cynodontis Syd. See Cynodon.

Cerebella inquinans (B. and Br.) Petch. On *P. javanicum* and *Paspalum longiflorum* in India, *P. royleanum*, *P. (Syntherisma) sanguinale*, and *P. scrobiculatum* in India and Ceylon.

Mycosphaerella panicicola P. Henn. On leaves of *Panicum* sp. in Brazil.

Phaeodothis stenostoma (E. and E.) Theiss. and Syd. Black stromata on leaves of *P. brizanthum* in central Africa.

Phyllachora acutispora Speg. Dull-black stromata on upper leaf surfaces of *Panicum* sp. in Brazil.

Phyllachora apiculata Speg. Small linear black stromata on leaves of *P. grumosum* in Argentina.

Phyllachora bokensis P. Henn. Dull-black stromata on oblong dull-brown leaf spots on *Panicum* sp. in the Congo.

Phyllachora bonariensis Speg. Small, subcircular, smooth black stromata on leaves of *P. bambusoides* in Venezuela and Argentina.

Phyllachora congruens Rehm. Black stromata on leaves of *P. carinatum* in the Philippines.

Phyllachora heterospora P. Henn. Shiny black stromata on large yellow leaf areas on *P. maximum* and *Panicum* sp. in Ecuador, the Congo, and the Union of South Africa.

Phyllachora panici (Rehm.) Theiss. and Syd. Dull-black stromata on brown leaf spots on *Panicum* sp. in Brazil.

Phyllachora panici-sulcati (P. Henn.) Theiss. and Syd. Black stromata on leaves of *P. sulcatum* in Costa Rica.

Phyllachora pazschkeana Syd. Circular or elliptical black stromata on leaves of *P. pilosum* and *P. sciurotes* in Brazil and Colombia.

Phyllachora raciborskii Theiss. and Syd. Black stromata on leaves of *P. nepalense* in Java.

Phyllachora sanguinolenta Theiss. and Syd. Shiny black circular stromata on leaves of *P. sanguinolentum* in the Congo.

Phyllachora seriata Theiss. and Syd. Black shiny oblong stromata on yellow leaf spots on *P. palmaefolium* and *Panicum* sp. in the Philippines.

Phyllachora stenospora (B. and Br.) Sacc. Tar spot on leaves of *P. patens* and *P. triganum* in Ceylon and the Philippines.

Phyllachora vanderystii Theiss. and Syd. Black elliptical stromata on leaves of *P. plicatum* in Ceylon and the Congo.

Phyllachora urvilleana Speg. Tar spot on leaves of *P. urvilleanum* in Argentina.

Phyllosticta panici Young. Indefinite brown leaf spots on *P. maximum* in Porto Rico.

Physalospora panici Rehm. On *Panicum* sp. in Brazil.

Puccinia goyazensis (P. Henn.) Syd. Rust on leaves of *Panicum* sp. in Brazil.

Puccinia huberi P. Henn. Brown to black rust pustules on leaves of *P. fasciculatum*, *P. ovulifolium*, *P. trichoides*, *P. paniculatum*, *P. tenellum*, *P. utowanaeum*, and *Paspalum virgatum* in Porto Rico, Cuba, Mexico, and Brazil.

PANICUM—Continued.

Puccinia insolita Syd. Powdery brown elongate rust sori on leaves of *P. maximum* in the Congo.
Puccinia negrensis P. Henn. Brown rust pustules on dull-brown leaf spots on *P. negrensis* in Brazil.
Puccinia oahuensis E. and E. Powdery yellow-brown rust pustules on leaves of *Panicum* sp. and *Syntherisma sanguinale* in Hawaii and Japan.
Puccinia orientale Syd. and Butl. Yellow-brown rust sori on leaves of *P. prostratum*, *P. trigonum*, and *Panicum* sp. in India and the Philippines.
Puccinia panicophila Speg. Brown rust sori on leaves of *P. insulare* in Argentina.
Puccinia puttemansii P. Henn. Leaf rust on *Panicum* sp. in Brazil.
Septoria tandilensis Speg. On leaves and sheaths of *P. nitidum* in Argentina.
Sorosporium africanum Syd. Black powdery smut masses destroying the ovaries of *P. trichops* in Portuguese East Africa.
Sorosporium cryptum McAlp. Smut sori concealed by the glumes and converting the ovaries into black spore masses. On *P. bicolor* and *P. effusum* in Australia.
Sorosporium ovarium Griff. Gray-brown smut sori in ovaries of *P. caespitosum* in Mexico, rupturing to expose black powdery spore masses.
Sorosporium panici MacKin. and var. **kinshasaensis** Beeli. Smut in ovaries of *P. flavidum*, *P. kinshasaensis*, and *Panicum* sp. in New South Wales and the Congo.
Sphacelotheca chudaei Har. and Pat. Long ovoid smut sori in inflorescences of *P. turgidum* in Morocco.
Telimena graminis (v. Hoeh.) Theiss. and Syd. Circular to oblong black stromata on leaves of *Panicum* sp. in Samoa.
Telimena panici Theiss. and Syd. Dull-black stromata on leaves of *P. patens* in the Philippines.
Tilletia ayresii Berk. Buff spore masses produced in the ovaries of *P. maximum* in Mauritius.
Tilletia courtetiana Har. and Pat. Smut sori consisting of olive-brown spore masses, deforming ovaries of *P. proliferum* in the Congo.
Tilletia magnusiana F. de W. Black smut masses in ovaries of *P. geniculatum* in the West Indies.
Tilletia tumefaciens Syd. Powdery smut sori deforming leaves and culms of *P. antidotale* in India.
Tilletia verrucosa Cke. and Mass. Smut in ovaries of *P. coloratum* and *P. miliare* in South Africa.
Tolyposporium bogoriense Racib. Smut sori in flowers of *Panicum* sp. in Java.
Tolyposporium minus Schroet. Ashen smut sori in ovaries of *Panicum* sp. in Brazil, rupturing to expose black spore masses.
Uredo panici-montani Petch. Leaf rust on *P. montanum* in Ceylon.
Uredo panici-prostrati Syd. Powdery brown rust pustules on leaves of *P. prostratum* in India.
Uredo panici-villosi Petch. Leaf rust on *P. villosum* in Ceylon.
Uromyces leptodermus Syd. Powdery brown rust pustules on leaves of *P. barbinode*, *P. isachne*, *P. javanicum*, and *P. prostratum* in Porto Rico, Cuba, Peru, Guatemala, and India. Also known from southern Florida.
Uromyces linearis B. and Br. Brown, then black, linear rust sori on leaves of *P. flavidum*, *P. miliare*, *P. proliferum*, and *P. repens* in India, Ceylon, China, Japan, and the Philippines.
Uromyces puttemansii Rangel. Leaf rust on *P. mellinum* in Brazil.
Uromyces superfluus Syd. Leaf rust on *P. antidotale* in India.
Ustilaginoidea congensis P. Henn. Globose to subturbinate olivaceous sclerotia in ovaries of *P. brizanthum* and *P. maximum* in the Congo.
Ustilaginoidea ochraceae P. Henn. Sclerotia in ovaries of *P. auritum* in the Philippines.
Ustilaginoidea usambarensis P. Henn. Ashen-olivaceous sclerotia deforming the ovaries of *P. laxum* in Porto Rico and Tanganyika.
Ustilago balansae Speg. Powdery dark-brown smut masses in panicles of *Panicum* sp. in Argentina.
Ustilago bonariensis Speg. Powdery dark-olive smut sori covered by a whitish pesudomembrane in spikelets of *P. elephantipedis*, *P. spectabile*, and *Pennisetum tristachyon* in Argentina.
Ustilago cacheutensis Speg. Black powdery smut masses destroying the panicles of *P. leucophaeum* in Argentina.
Ustilago confusa Mass. Smut in ovaries of *P. paradoxum* in Australia.
Ustilago digitariae (Kze.) Rbh. Flowers, rachides, and culms destroyed and replaced by black smut sori on *P. glabrum*, *P. repens*, *P. teneriffae*, and *Syntherisma sanguinale* in Ceylon, India, Formosa, Portuguese East Africa, Sudan, Italy, and Germany.
Ustilago formosana K. Saw. Linear smut sori, up to 14 centimeters long, inclosed at first by a grayish-white membrane, which ruptures, exposing the black spore masses; in inflorescences and culms of *P. proliferum* in Formosa.
Ustilago globigena Speg. Smut sori in spikelets of *P. spectabile* in Argentina.
Ustilago heterospora P. Henn. Powdery olivaceous spore masses deforming the ovaries of *P. maximum*, *Setaria aurea*, and *S. glauca* in tropical Africa.
Ustilago manilensis Syd. Smut sori in the spikes of *P. indicum* in the Philippines.
Ustilago negeriana Diet. Black spore masses in ovaries of *P. urvilleanum* in Chile.
Ustilago operta Syd. and Butl. Smut in ovaries of *P. prostratum*, *P. ramosum*, and *P. villosum* in India.
Ustilago panici-frumentacei Bref. Black smut sori covered with a persistent gray membrane involving inflorescences, stems, nodes, and young shoots and causing abortion of fruiting heads. On *P.* (*Echinochloa*) *frumentaceum* in India.
Ustilago panici-gracilis MacKim. Smut in ovaries of *P. gracile* in New South Wales.
Ustilago panici-latifolii P. Henn. Black powdery smut sori in ovaries of *P. latifolium* in Brazil.
Ustilago panici-leucophaei Bref. Spikelets of *P. leucophaeum* in Brazil and Guatemala transformed into black powdery smut masses.
Ustilago panici-petrosi Syd. Dark-brown powdery smut sori destroying the inflorescences of *P. petrosum* in Brazil.
Ustilago panici-proliferi P. Henn. Smut sori in inner folded leaves, aborting the inflorescences and covered by thin transparent membranes which soon rupture, exposing dusty olive-black spore masses, on *P. paspaloides* and *P. proliferum* in Mexico.
Ustilago paradoxa Syd. and Butl. Smut sori attacking the individual ovaries of *P. frumentaceum* in India. The sori are round, gray, and covered by persistent membranes, which are broken only by handling, exposing the black spore masses.
Ustilago pretoriensis Pole-Evans. Long powdery dark olivaceous smut sori destroying the ovaries of *P. helopodis* in the Union of South Africa.
Ustilago rickerii Clint. Olive-black dusty smut masses in ovaries of *P. paspaloides* in Cuba.
Ustilago trichophora (Link.) Kze. Smut sori in ovaries of *P. colonum* and *Tricholaena* (*Panicum*) *teneriffae* in India and north Africa.
Ustilago ugandensis P. Henn. and var. **macrospora** Beeli. Smut sori consisting of olivaceous powdery spore masses at apex of culms, in rachides and flowers of *Panicum* sp. in tropical Africa.
Ustilago vesiculosa P. Henn. Smut sori in panicles of *Panicum* sp. in Brazil.

PAPAVER. Poppy. Biennial or perennial herbs with milky juice. Economic and favorite garden plants.

Aecidium papaveris Wint. On leaves of *P. rhoeas* in Norway and Sweden.

Entyloma fusoma Speg. See Smuts.

Glæosporium sp. On leaves of *P. orientalium* in Japan.

Helminthosporium papaveri Sacc. Large irregular brown leaf spots on *P. orientalium* in Formosa. Spots are more or less circular and zonate, usually with a dark spot in the center. Affected parts wither and die. The most common disease of the cultivated poppy in Formosa."

Helminthosporium papaveris Pass. On *Papaver* sp. in Hungary.

Marssonia papaveris Pass. On brown capsules and leaves of *P. orientalium* in Italy.

Peronospora arborescens Berk. Fig. 34. A downy mildew forming yellowish-red spots, more extensive than those caused by *P. arborescens* on *P. bracteatum* and *P. somniferum*. Affected parts wither and die. The spots are not angular and do not have the yellow margin characteristic of the former disease. On *P. bracteatum*, *P. rhoeas*, *P. somniferum* and *P. umbrosum*. Europe, India, Australia, Algeria, Egypt and Europe.

Peronospora arsenariae Gäum. Downy mildew on leaves of *P. orientalium* in Switzerland, Scandinavia, America and Australia.

Peronospora crispata Trail. On leaves of *P. bracteatum* in Asia Minor.

Septoria rhoeadis Desm. Minute brown circular and confluent leaf spots on *P. rhoeas* in Italy.

PAPHIOPEDILUM. Terrestrial or epiphytic orchids. See Orchidaceæ.

PAPYRIUS. See Broussonetia.

PARAMICHELIA. Perennial climbing shrubs.

Aecidium paramichelia Kalch. Small, circular leaf spots on *P. bivona* and *P. monophylla* in Java, Ceylon, and India.

Exobasidium sp. See Smuts.

Hemisthebosporium makinoense Syd. On branches of *P. monophylla* in the Philippines.

PARIS. Herbs with simple leaves and petals.

Cercospora paridis Ell. & Ev. Minute leaf spots on *P. quadrifolia* in Russia, Sweden, Switzerland, Bohemia, Austria, and Denmark.

Septoria paridis Passer. Minute irregular whitish leaf spots with indefinite margins on *P. quadrifolia* in Russia and Italy.

Tuberculina paridis Tog. Vestergr. Smut on leaves and stems of *P. quadrifolia* in Russia, Sweden, Germany and Austria.

Uropyxis circinata Diet. & Holw. See Chrysomyxa.

PARRIA. Tropical herbs with simple leaves and flowers.

Endodothella parriae P. Henn. Minute dark spots. Black stromata on leaves and spots on *Parria* sp. in Brazil.

Leptothyrella manaosensis P. Henn. Brown fruiting bodies on leaves of *P. manaosensis* in Brazil.

Phyllachora parriae P. Henn. Minute to 1/2 inch stromata on leaves and spots on *P. manaosensis* in Brazil.

PARNASSIA. Perennial herbs with simple leaves and flowers. Low marshy plants, usually perennial herbs.

Puccinia obliqua Fckl. Leaf rust on *P. palustris* and *Carex rostrata* in Europe.

PAROMELA. See Melastoma.

PARRYA. Low perennial herbs with thick leaves and respectable petitioners.

Puccinia andersoni Peck. See Uromyces.

PARSONSIA. HELLIGIA. Twining apocynaceous shrubs.

Aecidium parsonsiae Petch. Leaf rust on *P. parsonsiae* (*Helligia*).

PARSNIPS. See Umbelliferæ.

PARTHENIUM. Annual or perennial, herbaceous plants, mostly bushy pubescent.

Erysiphe cichoracearum DC. On *Parthenium* sp. in Argentina.

Uredo parthenii Speg. Leaf rust on *P. hysterophorus* in Argentina.

PASANIA. LITHOCARPUS Bl. Tall trees with thick, leathery, evergreen leaves and large acorns.

Trichosphæria pasaniae Hara. On dead twigs of *P. cuspidata* in Japan.

PASCALIA. See Wedelia.

PASPALUM. Perennial grasses, frequently creeping and forming mats or matted roots.

Balansia gigas Speg. On leaves and panicles of *P. conjugatum* in Java.

Balansia paspali P. Henn. Minute dark stromata on spots of *Paspalum* sp. on Formosa and the Philippines.

Cercospora sp. On leaves of *P. conjugatum* in Java.

Claviceps sp. On leaves of *P. distichum*, *P. conjugatum*, *P. compressum*, *P. scrobiculatum*, *P. paniculatum*, *P. commersonii*, *P. longifolium*, *P. plicatulum*, *P. virgatum*, *P. vaginatum*, *P. orbiculare*, *P. ciliatifolium*, *P. dilatatum*, *P. notatum*, *P. platycaule*, *P. pubescens*, *P. stramineum*, *P. urvillei*, *P. vaginatum*, *P. virgatum*, *P. wettsteinii* and other species in Argentina. Probably not distinct from *C. paspali*.

Claviceps paspali Stev. & Hall. On leaves of *P. conjugatum* in Porto Rico.

Endodothella platensis (Speg.) Theiss. Minute dark spots. Effused to linear black stromata on leaves of *P. conjugatum* in Brazil.

Ephelis japonica P. Henn. Subepidermal pycnidia on leaves of *P. conjugatum* in Japan.

Hemisthebosporium mayaguense Mayor. Small yellow spots with narrow dark margins on leaves of *P. conjugatum* in Porto Rico.

Phyllachora acuminata Speg. On leaves of *Paspalum* sp. in Argentina.

Phyllachora infuscans Speg. On leaves of *P. conjugatum* in Argentina.

Phyllachora paspaleda P. Henn. Minute dark stromata on leaves of *P. conjugatum* and *P. scrobiculatum* in Java. *P. paspaleda* is probably identical with *P. paspali*.

Phyllachora wahlbergii (Fr.) Sacc. On leaves of *P. scrobiculatum* in Japan and Transvaal.

Puccinia aeruginosa Speg. On leaves of *P. conjugatum* in Argentina.

Puccinia graminis Pers. Leaf rust on *P. conjugatum* in Argentina.

Puccinia mauritiana Speg. Leaf rust on *P. distichum* in Brazil.

Puccinia paspalicola (Speg.) Diet. Leaf rust on *P. conjugatum* in Brazil.

Puccinia tuberculum Diet. & Holw. On leaves of *P. conjugatum*, *P. compressum*, *P. scrobiculatum*, *P. paniculatum*, *P. commersonii*, *P. longifolium*, *P. plicatulum*, *P. virgatum*, *P. vaginatum*, *P. orbiculare*, *P. ciliatifolium*, *P. dilatatum*, *P. notatum*, *P. platycaule*, *P. pubescens*, *P. stramineum*, *P. urvillei*, *P. vaginatum*, *P. virgatum*, *P. wettsteinii* and other species in Argentina. Probably not distinct from *C. paspali*.

Sorosporium paspali Speg. On leaves of *P. conjugatum* in Argentina.

Tuberculina maxima Rost. Minute black stromata on leaves of *Paspalum* sp. in the Philippines.

Thecaphora leguminum Speg. On leaves of *P. conjugatum* in Argentina.

Tilletia ulei Magn. Smut on leaves of *P. conjugatum* in Brazil.

Uredo paspalicola glicosa Speg. Leaf rust on *P. conjugatum* in Argentina.

Uredo paspalina Speg. Brown leaf rust on *P. scrobiculatum* in the Philippines.

PAVONIA—Continued.
Puccinia pavoniae P. Henn. Ochraceous-brown rust pustules on leaves of *Pavonia* sp. in Tanganyika.
Pucciniosira pallidula (Speg.) Lagh. Yellow rust sori on leaves of *P. paniculata* and *Triumfetta* spp. in Central and South America and the West Indies.
Ramularia aguierrei Speg. Indefinite areas on leaves of *P. sepium* in Argentina.
Rostrupia praelonga Speg. Linear yellow-brown rust pustules on leaves and branches of *P. polymorpha* in Argentina.
Uromyces pavoniae Arth. Leaf rust on *P. racemosa* in Porto Rico.
PEDICULARIS. Wood betony. Lousewort. Mostly perennial herbs with finely cut foliage.
Cronartium flaccidum (Alb. and Schw.) Wint. See Paeonia.
Melampsora pedicularis Vogl. Leaf rust on *P. verticillata* in Switzerland.
Peronospora pedicularis Palm. Downy mildew on leaves of *P. lapponica* in Sweden and Norway.
Plasmopara densa (Rabh.) Schroct. Downy mildew on leaves of *P. palustris, P. silvatica, Alectorolophus alpinus, Bartsia alpina, Euphrasia officinalis, E. pratensis,* and *Odontites rubra* in Europe.
Puccinia oederi Blytt. Brown rust sori on leaves of *P. oederi* in Norway.
Puccinia paludosa Plowr. The yellow aecia of this rust occur on *P. mexicana* and *P. palustris*, the other stages on Carex spp. in Europe.
Puccinia pedicularis Thuem. Leaf rust on *Pedicularis* sp. in Siberia.
Ramularia filiformis Lindr. Leaf spots on *P. sylvatica* in Sweden.
Ramularia obducens Thuem. On leaves of *P. foliosa* and *P. palustris* in Austria and Switzerland. Reported from California.
Rhytisma pedicularis (DC.) Rehm. Black confluent stromata on leaves of *P. incarnata* and *P. alpina* in Italy.
Septoria pedicularium Fr. On stems of *Pedicularis* sp. in Europe.
PELARGONIUM. Geranium. Herbaceous plants used as potted plants for indoor planting and for bedding.
Cercospora sp. On leaves of *Pelargonium* sp. in China.
Coniothyrium trabuti Riza. Indefinite yellow patches on leaves of *P. peltatum* in Morocco.
Fusarium pelargonii Crouan. Causes a black rot of stems, the leaves turning yellow, on *Pelargonium* sp. in Great Britain, France, and Denmark.
Gloeosporium pelargonii Cke. and Mass. Anthracnose, causing leaves of *Pelargonium* sp. in Great Britain to wither and droop.
Leptosphaeria pelargonii Rehm. Irregular whitish spots on leaves of cultivated *Pelargonium* in Brazil.
Macrosporium macalpineanum Sacc. and Syd. Large irregular and confluent yellow-brown leaf spots with purple margins on *P. zonale* in Australia and Ceylon.
Puccinia granularis Kalch. and Cke. Brown rust sori in circles on lower leaf surfaces of *P. aconitophyllum, P. alchemilloides,* and other species, as well as *Begonia* sp., in the Union of South Africa. Serious in greenhouses.
Puccinia morrisoni McAlp. Orange and brown to black rust pustules on leaves of *P. australe* in Australia.
Puccinia pelargonii (Thuem.) Syd. Yellow and brown rust sori on leaves of *P. alchemilloides* in the Union of South Africa.
Septoria geranii Rob. and Desm. See Geranium.
Septoria pelargonii Syd. Circular to irregular yellow-brown to red-brown leaf spots on *P. cucullatum* in the Union of South Africa.
PELLAEA. Cliff brake. Small rock-loving ferns.
Uredo pellaeae Diet. and Neg. Rust on leaves of *P. ternifolia* in Chile.
PELTOPHORUM. Tropical leguminous trees.
Phyllachora peltophori Syd. Shiny black stromata on leaves of *P. africanum* in the Union of South Africa.
PENNISETUM. Pearl millet. Napier grass. Stout grasses with bristly spike-like inflorescences.
Acrothecium penniseti Mitra. The fungus attacks the leaves, leafsheaths, and ears of *P. typhoideum* in India. The leaf spots are small, yellow brown, and oval to oblong. The lower leaves are destroyed and infected heads fail to set grain.
Balansia claviceps Speg. Black stromata in spikes of *Pennisetum* sp. and *Setaria* sp. in Argentina.
Beniowskia penniseti Wakef. Small pale-red leaf spots on *P. purpureum* and *Holcus sorghum* in Uganda.
Cerebella cenchroidis Subra. Black corrugated fungus masses in ovaries of *P. cenchroides* in India.
Cintractia columellifera (Tul.) McAlp. See Andropogon.
Didymella penniseti Syd. On leaves of *P. tristachyon* in Columbia.
Leptostroma penniseti P. Henn. Effuse dull-brown leaf spots on *P. japonicum* in Japan.
Neovossia barclayana Bref. Smut sori in ovaries of *P. triflorum* in India.
Phyllachora minutissima (Welw. and Curr.) Sm. Small elliptical stromata on leaves of *Pennisetum* sp. in Angola.
Phyllachora penniseti Syd. Black stromata on leaves of *P. benthami* and *P. sphacelatum* in Congo and the Union of South Africa.
Phyllachora pennisetina Syd. Tar spot on leaves of *P. alopecuroides* in China.
Puccinia apoda Har. and Pat. Brown to black rust sori on rufous leaf spots on *P. setosum* in the Congo.
Puccinia arthuri Syd. Leaf rust on *P. crinitum* and *P. mexicanum* in Mexico.
Puccinia burmeisteri Speg. Leaf rust on *P. tristachyon* in Argentina.
Puccinia penniseti Zimm. Brownish-yellow to black rust sori on brown leaf spots on *P. spicatum* and *P. typhoideum* in India and east Africa.
Tolyposporium penicillariae Bref. Smut sori bright green to black, projecting beyond the glumes and finally breaking to expose deep-brown spore masses. Attacking individual grains or small groups of grain of *P. spicatum* and *P. typhoideum* in India, Egypt, and other parts of Africa.
Ustilaginoidea penniseti Miy. Sclerotia in ovaries of *P. compressum* in China.
Ustilago bonariensis Speg. See Panicum.
Ustilago kamerunensis Syd. Smut sori destroying inflorescences of *Pennisetum* sp. in Congo.
Ustilago pappiana Bacc. Black smut sori in ovaries of *P. orientalis* and *P. ruppeli* in Abyssinia.
Ustilago penniseti Rabenh. Black smut sori in ovaries of *P. asperifolium, P. cenchroides, P. dichotomum, P. fasciculatum, P. ruppeli, P. vulpinum,* and *P. villosum* in Madeira, China, Arabia, Abyssinia, Egypt, Algeria, and Tripoli.
Ustilago penniseti-japonici P. Henn. Smut sori destroying flowers of *P. compressum, P. japonicum,* and *P. purpurascens* in China and Japan.
Ustilago scheffleri Syd. Smut sori up to 3 centimeters long, covered by ashen membranes which rupture, exposing black powdery spore masses in inflorescences of *P. inclusum* in tropical Africa.

PENTAS. Tender herbs and subshrubs.
Puccinia pentadicola Grove. Leaf rust on *P. verticillata* in Uganda.
Puccinia pentadis P. Henn. Brown rust sori on leaves of *P. mombassana* in tropical Africa.
Puccinia pentadis-carneae Wakef. Leaf rust on *P. carnea* in Uganda.
PENTSTEMON. Sometimes called beardtongue. Tubular-flowered bedding and border plants.
Phyllosticta pentstemonis Cke. and f. **pentastemonis-azurei** Allesch. Irregular brown leaf spots on *P. azureus*, *P. grandiflorus*, and *P. hybridus* in Great Britain and Germany.
Puccinia mexicana Diet. and Holw. Brown rust pustules on sunken, circular leaf spots on *P. campanulatus* in Mexico.
Puccinia pentastemonum Lév. Brown rust sori on leaves of *Pentstemon* sp. in France.
PEPEROMIA. Tropical and subtropical herbs, a few species cultivated as foliage plants.
Albugo tropica Lagh. White rustlike pustules on leaves of *P. pellucida* in the West Indies and Ecuador.
Ureco peperomiae P. Henn. Irregular, dull yellow rust sori on leaves of *Peperomia* sp. in Brazil.
Uredo piperis P. Henn. See Piper.
PERDICIUM. See Gerbera.
PERESKIA. Shrubby or clambering vines with edible fruits.
Uromyces peireskiae Diet. Light-brown rust pustules on *Pereskia* sp. in Brazil.
PERILLA. Herbs, some species with colored foliage.
Coleosporium perillae Syd. Golden-yellow rust pustules on leaves of *P. arguta*, *P. crispa*, *P. nankinensis*, *P. ocimoides*, *Elscholtzia cristata*, *Keiskea japonica*, *Mosla formosana*, and *M. punctata* in Japan, Formosa, Manchuria, and India.
PERIPLOCA. SILK VINE. Ornamental vines grown for their handsome glossy foliage.
Ascochyta periplocae Kab. and Bub. Large round to irregular dark-brown, then ashen, leaf spots with brown-purple margins on *P. graeca* in Bohemia and Hungary.
Melampsora periplocae Miy. Leaf rust on *Periploca* sp. in China.
Phyllosticta periplocae F. Tassi. Circular, ashen leaf spots on *P. graeca* in Italy.
Septoria periplocae Höll. Subcircular, brown leaf spots on *P. graeca* in Hungary.
Uredo periplocae P. Henn. Ochraceous rust sori on irregular yellow leaf spots on *P. linearis* in tropical Africa.
PERISTROPHE. Greenhouse plants grown for their flowers.
Aecidium peristrophes Syd. Leaf rust on *Peristrophe* sp. in India.
Synchytrium rytzii Syd. Small leaf galls on *Peristrophe* sp. in India.
PERNETTYA. Plants grown for their attractive berries, evergreen foliage, and white or pinkish flowers.
Hypocrella pernettyae Pat. On leaves of *P. repens* in Java.
Stereum purpureum Pers. See Prunus.
PERSEA. Avocado. Sometimes called alligator pear. Tropical and subtropical fruit trees.
Cercospora (?) lingue Speg. On leaves of *P. lingue* in Chile.
Endothia havanensis Bruner. See Eucalyptus.
Fomes lamaoensis Murr. See Hevea.
Mycosphaerella perseae Miles. Large irregular leaf spots, ashen above, brown beneath on *P. americana* in Porto Rico.
Phyllachora gratissima Rehm. Black stromata on irregular red-brown leaf spots on *P. americana* in Porto Rico, Costa Rica, and Ecuador.
Physalospora perseae Doidge. Produces a canker disease of *P. americana* in the Union of South Africa. Sunken discolored areas appear, gradually girdling twigs and branches. The dead bark dries out, cracks, and finally falls away. Brown, deeply cracking corky growths on the lower ends of the fruit are attributed to the same fungus.
Pionnotes capillacea Sacc. Causes a die back of *P. americana* in the Philippines.
Rhytisma perseae Gandara. Black stromata on large, irregular brown leaf spots on *P. americana* in Mexico. Probably not distinct from *Phyllachora gratissima* Rehm.
Rosellinia spp. (*R. pepo* Pat.). See Citrus.
Eucalyptus disease. See Eucalyptus.
PERTYA. Oriental shrubs.
Aecidium pertyae P. Henn. Rust pustules on circular dull-brown leaf spots on *P. ovata* and *P. scandens* in Japan.
PETASITES. BUTTERBUR. Hardy perennial herbs.
Aecidium petasitidis Syd. Leaf rust on *P. albus*, *P. japonicus* *P. nivus*, *P. officinalis*, and *P. tomentosus* in Japan and central Europe.
Coleosporium petasites Lév. See Pinus.
Ramularia cervina Speg. and var. **petasitis** Bauml. On leaves of *P. albus* in Hungary.
Venturia petasitidis (Fckl.) Sacc. On leaves of *P. officinalis* in Europe.
PETIVERIA. Shrubby herbs.
Rosellinia bunodes B. and Br. See Citrus.
PETROSELINUM. PARSLEY. Biennial herbs cultivated for ornament and edible foliage.
Bacillus nelliae Welles. Bacterial wilt of *P. sativum* (*P. hortense*) in the Philippines.
Bacillus petroselini Pot. Small yellow leaf spots with brown margins on *P. sativum* in Russia.
Fusicladium depressum (B. and Br.) Sacc. and var. **petroselini** Sacc. On leaves of *P. sativum* in France and Spain.
Gloeosporium achaenicola Rostr. Ashen-colored areas on fruit and peduncles of *P. sativum* and *Pastinaca sativa* in Denmark.
Macrosporium cheiranthi (Lib.) Fr. Circular, gray leaf spots on *P. sativum* in France.
Puccinia petroselini (DC.) Lindr. Cinnamon to dark-brown rust pustules on leaf blades and petioles and on stems of *P. sativum*, *Aethusa cynapioides*, and *Anethum graveolens* in Argentina and Europe.
Septoria petroselini Desm. and var. **segetum** P. Brun. Leaf spots on *P. hortense*, *P. sativum*, and *P. segetum* in Australia, Barbados, Argentina, Union of South Africa, and Europe.
PETUNIA. Small herbs cultivated for their showy flowers.
Entyloma petuniae Speg. Smut sori in pale indefinite spots, often occupying entire area of leaf blades of *P. nyctaginiflora* in Argentina.
Phyllosticta petuniae Speg. Circular, then angular, dull-brown leaf spots on *Petunia* sp. in Great Britain.
Ramularia petuniae Cke. Large, somewhat circular, dull-yellow leaf spots on *Petunia* sp. in Great Britain.
PHAJUS. Epiphytic and terrestrial orchids. See Orchidaceae.
PHALAENOPSIS. See Orchidaceae.

PHALARIS. REED CANARY GRASS. Stout, hardy, ornamental grasses.
Entyloma brefeldi Krieger. Smut sori in leaf spots on *P. arundinacea* in Germany.
Heterosporium phragmites (Opiz.) Sacc. and var. **inflorescentiae** Bub. On leaves of *P. arundinacea* and *Phragmites communis* in France and Bohemia.
Leptosphaeria culmicola (Fr.) Karst. See Bromus.
Mycosphaerella chlorina (Cke.) Lind. On leaves of *P. arundinacea* in Great Britain.
Ophiobolus cariceti (B. and Br.) Sacc. See Triticum.
Phyllosticta crastophila Sacc. Dull-yellow areas on leaves of *P. arundinacea* and *Setaria verticillata* in Italy.
Physalospora phalaridis Zem. On *P. bulbosa* in Argentina.
Physoderma gerhardti Schroet. See Glyceria.
Puccinia brevicornis Ito. Leaf rust on *P. arundinacea* in Japan.
Puccinia orchidearum-phalaridis Kleb. See Orchidaceae.
Puccinia schmidtiana Diet. Yellow and powdery brown to black rust pustules on leaves of *P. arundinacea*, *Leucojum aestivum*, and *L. vernum* in Italy, Austria, and Germany.
Puccinia winteriana P. Magn. Yellow and brown to black rust sori on leaves of *P. arundinacea* and *Allium ursinum* in Spain, France, Switzerland, Great Britain, Denmark, Holland, and Germany.
Sclerospora kriegeriana Magn. Downy mildew on leaves of *P. arundinacea* in Germany.
Sclerospora macrospora Sacc. See Triticum.
Septoria phalaridis Cocc. and Mor. Pale-yellow spots on leaves and sheaths of *P. brachystachys* in Italy.
Tilletia menieri Har. and Pat. Smut sori turning the ovaries of *P. arundinacea* into brown spore masses. Reported from France.

PHASEOLUS. BEAN. Lima-bean. Herbs cultivated as vegetables and forage plants.
Acanthostigma heterochaeta Syd. and Butl. Brown or yellow-brown leaf spots on *Dumasia villosa*, *Dumasia* sp., *P. mungo*, and *P. radiatus* in India.
Ascochyta boltshauseri Sacc. Brown spots concentrically zoned and causing premature death of the leaves of *P. lunatus*, *P. vulgaris*, and *Vicia faba* in New Zealand, Russia, Bohemia, Switzerland, Holland, Norway, and Denmark.
Ascochyta bormulleril Syd. On leaves of *P. acutifolius* in Mexico.
Ascochyta phaseolorum Sacc. Indefinite ochraceous leaf spots on *P. mungo*, *P. multiflorus*, *P. nanus*, *P. radiatus*, *P. vulgaris*, *Vigna catjang*, and *Vicia faba* in Japan, Uganda, and Europe.
Asteroma phaseoli Brun. Felty-black spots on pods of *P. vulgaris* in the Philippines.
Cercospora lussoniensis Sacc. Leaf spot on *P. lunatus* in the Philippines.
Cercospora stuhlmanni P. Henn. Irregular dull-brown leaf spots on *P. vulgaris* in Tanganyika.
Cercospora zonata Wint. See Vicia.
Cercosporina caracallae Speg. Angular ashen leaf spots on *P. caracalla* in Argentina.
Cylindrosporium phaseoli Rabh. On leaves of *Phaseolus* sp. in Germany.
Diplodia phaseolina Sacc. Small black spots on ripening pods of *P. lunatus* and *P. vulgaris* in the Philippines.
Hypochnus cucumeris Frank. See Cucumis.
Leptosphaeria circinans (Fckl.) Sacc. See Asparagus.
Macrophoma phaseolina F. Tassi. Irregular pale-brown leaf spots on *P. ornithopus* in Italy.
Mosaic. A mosaic disease, said to resemble a similar disease on soy (*Soja*), is reported from Japan and may be the same as the mosaic of legumes occurring in the United States.
Mycosphaerella phaseolicola Desm. Pale-reddish leaf spots on *P. vulgaris* in Japan and France.
Mycosphaerella phaseolorum Siem. On leaves of *P. mungo* and *Soja max* in Russia.
Phyllachora phaseoli (P. Henn.) Theiss. and Syd. Shiny black stromata on leaves of *P. adenanthus* and *Phaseolus* sp. in Porto Rico and Brazil.
Phyllachora phaseolina Syd. Circular black stromata on rust-brown leaf spots on *P. calcaratus* and *Vigna* sp. in the Philippines and Amboina.
Phyllosticta noackiana Allesch. Subcircular ochraceous leaf spots on *Phaseolus* sp. in Brazil.
Phyllosticta phaseolorum Sacc. and Speg. See Vigna.
Physopella concors Arth. Brown powdery rust pustules on leaves of *P. lunatus*, *Dolichos lablab*, and *Teramnus uncinatus* in Porto Rico.
Pleosphaerulina phaseoli Syd. On leaves of *P. semierectus* in the Philippines.
Rhizoctonia sp. See Vigna.
Rhizoctonia dimorpha Matz. Attacks leaves and stems of *Phaseolus* sp. and *Vigna catjang* in Porto Rico.
Rhizoctonia macrosclerotia Matz. Reported on petioles and stems of *Phaseolus* sp. in Porto Rico.
Sclerophoma phaseoli Karak. On pods of *P. multiflorus* in Russia.
Septoria phaseoli Maubl. Irregular greenish leaf spots on *P. mungo* and *Phaseolus* sp. in Russia and Brazil.
Uredo vignae Bres. See Vigna.
Uromyces phaseolicola Speg. Leaf rust on *P. prostratus* in Argentina.

PHEGOPTERIS. WOOD FERN.
Exoascus filicinus (Rostr.) Sacc. See Polystichum.
Uredinopsis filicina P. Magn. Yellow-brown rust pustules on leaves of *P. polypodioides* (*Dryopteris polypodioides*) in Europe.

PHELLODENDRON. CORK TREE. Ornamental trees.
Ascochyta phellodendri Kab. and Bub. Round to irregular brown leaf spots with white centers on *P. amurense* in Bohemia.
Coleosporium phellodendri Kom. Fg. Golden rust sori on leaves of *P. amurense* in Chosen, Manchuria, and Japan.

PHILADELPHUS. MOCK ORANGE. Syringa. Ornamental shrubs.
Aecidium philadelphi Diet. Leaf rust on *P. coronarius* in Japan.
Ascochyta fuscescens Kab. and Bub. Indefinite dull-brown to ashen areas on leaves of *P. coronarius* in Bohemia.
Ascochyta philadelphi Sacc. and Speg. Subcircular ochraceous leaf spots on *P. coronarius* in Europe.
Phragmidium philadelphi Pass. Leaf rust on *P. coronarius* in Yugoslavia.
Phyllosticta coronaria Pass. Large brown leaf spots on *P. coronarius* in Russia, Italy, Belgium, and Denmark.
Stereum purpureum Pers. See Prunus.

PHILIBERTIA. Climbing shrubs.
Aecidium philibertiae P. Henn. Yellow rust sori on leaf blades and petioles of *P. flava* in Argentina.
Cercospora gilesii Speg. On leaves of *P. gilesii* in Argentina.
Napicladium asclepiadinum Speg. Pale indefinite leaf spots on *P. rotata* in Argentina.
Phyllosticta gilesii Speg. Circular definite whitish leaf spots on *P. gilesii* in Argentina.

PHILLYREA. Ornamental woody plants grown for their handsome evergreen foliage.
Accidium phillyreae DC. Leaf rust on *P. latifolia* and *P. media* in Dalmatia and Portugal.
Ascochyta baciliigera Wint. Irregular dull-brown to gray leaf spots on *P. angustifolia* in Portugal.
Fusicladium radiosum (Lib.) Lind. var. **microsporum** Sacc. On leaves of *P. media* in Spain.
Phyllosticta goritiensis Sacc. Circular dull-brown leaf spots on *P. angustifolia* and *P. latifolia* in Italy.
Phyllosticta phillyreae Sacc. Gray-ochraceous leaf spots with rufous margins on *P. latifolia* and *P. media* in Italy and France.
Phyllosticta phillyricola Rabh. On leaves of *Phillyrea* sp. in Germany.
Phyllosticta romana D. Sacc. Subcircular to oblong ashen leaf spots on *P. media* in Italy.
Septoria crateriformis (Dur. and Mont.) Sacc. On leaves of *P. latifolia* and *P. media* in France and Algeria.
Septoria erythrostoma (Dur. and Mont.) Sacc. On leaves of *Phillyrea* sp. in Algeria.
Septoria phillyreae Thuem. Small gray leaf spots on *P. latifolia* in Portugal.
Zaghouania phillyreae Pat. Golden-yellow rust sori on leaf blades and petioles and on stems of *P. angustifolia, P. intermedia, P. latifolia, P. media,* and *P. vilmoriniana* in Great Britain, France, Corsica, Italy, Sicily, Dalmatia, Spain, Portugal, Austria, Tunis, and Algiers.

PHILODENDRON. Shrubby or treelike ornamental aroids, usually climbing.
Colletotrichum philodendri P. Henn. Circular whitish leaf spots with dark brown margins on *P. krebsii* and *Philodendron* sp. in Brazil and Porto Rico.
Glocosporium araceārum P. Henn. See Caladium.
Mycosphaerella philodendri (Pat.) Lind. Sunken white leaf spots with brown margins on *P. pertusum* in Venezuela.
Phyllachora englēri Speg. See Anthurium.
Phyllosticta philodendri Allesch. On leaves of *P. pertusum* in Brazil.
Septoria araccarum Sacc. Pale-brown leaf spots on *P. pertusum* in Italy.

PHLEUM. TIMOTHY. Hay and pasture grass.
Dilophia graminis (Fckl.) Sacc. See Triticum.
Entyloma camusianum P. Har. Smut sori in numerous circular to irregular dull-brown leaf spots on *P. arenarium* in France.
Septoria culmifida Lind. Small gray-white leaf spots with broad purple margins on *P. pratense, Arrhenatherum avenaceum, Dactylis glomerata,* and *Poa trivialis* in Denmark and Great Britain.

PHLOMIS. JERUSALEM SAGE. Stout herbs grown for their dense axillary whorls of large flowers.
Ascochytula phlomidis Jaap. On stems of *P. fruticosa* and *P. tuberosa* in Dalmatia and Russia.
Erysiphe taurica Lév. See Althaea.
Ovularia phlomidis Bub. and Wrobl. On leaves of *P. tuberosa* in Galicia and Russia.
Phyllosticta cuestae Gz. Frag. On leaves of *P. herba-venti* in Spain.
Puccinia excelsa Barcl. Dark-brown rust pustules on leaves of *P. lamiifolia* in India.
Puccinia phlomidis Thuem. Powdery dull-brown rust sori on leaves of *P. armeniaca, P. brevilabris, P. canescens, P. herba-venti, P. nissoli,* and *P. tuberosa* in Siberia, Russia, Turkestan, Asia Minor, Italy, Spain, and Yugoslavia.
Septoria barrasii Gz. Frag. On leaves of *P. purpurea* in Spain.

PHLOX. Showy-flowered annual and perennial garden herbs.
Phyllosticta decussata Syd. Circular to irregular pale-yellow leaf spots with purple margins on *P. decussata* in Germany.
Phyllosticta phlogis Vestergr. Subcircular dirty-white leaf spots with brown margins on *P. drummondi* in Sweden.
Pyrenochaeta phloxidis Mass. The stems of cultivated *Phlox* are attacked just above the ground line, cankers resulting, with consequent death of the stems. Occurs in Great Britain.
Septoria voglīniana Sacc. and Trott. Irregular, often confluent, chestnut-brown rust sori on leaves of *P. drummondi* in Italy.

PHOENIX. DATE PALM. See Palmae.

PHORMIUM. FLAX LILY. NEW ZEALAND FLAX. Fiber plant.
Heterosporium sp. Large irregular sooty blotches on lower leaf surfaces of *P. tenax* in New Zealand rotting the fiber.
Melampsora sp. Leaf rust on *Phormium* sp. in New Zealand.
Phaeoseptoria sp. On leaves of *P. tenax* in New Zealand, destroying the fiber.
Phyllosticta haematocycla Berk. Broad pale-brown leaf spots with red borders on *P. tenax* in Germany and Portugal.
Physalospora phormii Schroet. On leaves of *P. tenax* in Germany.
Ramularia phormii Waters. The most serious disease of *P. tenax* in New Zealand is the so-called yellow-leaf disease attributed in part to the above fungus, although other causes have been assigned in times past. Diseased plants show a yellowing and dying of the leaves which soon involves and destroys the entire plant. The seat of the trouble is in the roots, which rot off.
Septoria sp. Longitudinal purple stripes on leaves of *P. tenax* in New Zealand, ruining the fiber.
Septoria melanogramma Tass. On *P. tenax* in Italy.

PHOTINIA. Ornamental woody plants grown for their attractive flowers and fruits.
Corticium salmonicolor B. and Br. See Citrus.
Glocosporium tremellinum Gäum. Anthracnose on leaves of *P. notoniana* in Java.
Guignardia photiniae Alm. and Da Cam. On leaves of *Photinia* sp. in Portugal.
Gymnosporangium photiniae (P. Henn.) Syd. See Juniperus.
Phyllosticta photiniae Thuem. Grayish-white leaf spots with red margins on *P. glabra* in Italy.
Helicobasidium mompa Tan. See Morus.

PHRAGMITES. Reed. Large grasses.
Ascochyta arundinis Fautr. and Lam. On leaves of *P. communis* in France.
Ascochyta donacina Sacc. On culms of *P. communis* and *Donax* sp. in Italy and France.
Brachysporium phragmitis Miy. On leaves of *P. communis* in China.
Heterosporium phragmites (Opiz.) Sacc. See Phalaris.
Leptosphaeria eustoma (Fr.) Sacc. See Secale.
Leptostromella phragmitis Brun. On leaves of *P. communis* in Japan and France.
Mycosphaerella lineolata (Desm.) De N. See Calamagrostis.
Napicladium arundinaceum (Cda.) Sacc. On *P. communis* in Japan, Dalmatia, Switzerland, and Austria. Reported from Nebraska.
Napicladium laxum Bub. Long dark leaf spots with yellow surrounding areas on *P. communis* in Austria.
Phyllosticta phragmitis Nagorni. On leaves of *P. communis* in Russia.
Physalospora festucae (Lib.) Sacc. See Andropogon.
Pirostoma circinans Fr. On leaves, leaf sheaths, and stems of *P. communis* in Mongolia, France, Italy, Belgium, Sweden, and Germany.
Puccinia invenusta Syd. Yellow-brown to black rust sori on leaves of *P. karka* in India.
Puccinia isiacae (Thuem.) Wint. See Arundo.

PHRAGMITES—Continued.
Puccinia moriokaensis S. Ito. Black rust pustules on leaves of *P. communis* and *P. longivalvis* in Japan.
Puccinia obtusata (Otth.) Ed Fisch. Yellow and black rust pustules on leaves of *P. communis*, *Ligustrum vulgare*, and *L. ibota* in Japan and Germany.
Puccinia okatamaensis S. Ito. Black linear rust sori on leaves of *P. communis* and *P. longivalvis* in Japan.
Puccinia tepperi Ludw. Leaf rust on *P. communis* in Australia.
Puccinia trabutii Roum. and Sacc. Leaf rust on *P. gigantea* and *Linaria reflexa* in Persia and French North Africa.
Puccinia trailii Plowr. Red-brown to black rust sori on leaves of *P. communis* and *Rumex acetosa* in Australia and Europe.
Sclerospora macrospora Sacc. See Triticum.
Septoria arundinacea Sacc. Oblong ochraceous leaf spots on *P. communis* in Italy and France.
Septoria curva Karst. On culms of *P. communis* in Finland.
Septoria littoralis Speg. and var. **culmicola** Gz. Frag. On leaves of *P. communis* in Spain and Italy.
Septoria paludosa Kab. and Bub. On leaves of *P. communis* in Bohemia.
Septoria phragmites Sacc. and var. **minor** Sacc. Subovate whitish leaf spots with dull-brown margins on *P. communis* in France, Spain, and Italy.
Ustilago grandis Fr. Smut sori at the nodes as black powdery spore masses, causing constrictions of the nodes and shortening of the internodes, on *P. communis* and *P. longivalvis* in Europe.
Ustilago mirabilis Sorok. Black powdery smut sori on *P. communis* in Russia.

PHYLLANTHUS. STAR GOOSEBERRY. OTAHEITE GOOSEBERRY. Tropical trees and shrubs, some species cultivated for ornament and fruit.
Aecidium albicans Arth. and Holw. Leaf rust on *P. acuminatus* in Guatemala and Costa Rica.
Aecidium luzoniense P. Henn. Rust on circular yellow leaf spots on *Phyllanthus* sp. in the Philippines.
Aecidium phyllanthi P. Henn. Leaf rust on *P. flexuosus* and *Phyllanthus* sp. in Indo-China, New Guinea, Japan, and Uganda.
Aecidium phyllanthinum Syd. Leaf rust on *P. reticulatus* in India and the Philippines.
Catacauma egregium (Rehm.) Theiss. and Syd. Black stromata on leaves of *Phyllanthus* sp. in Brazil.
Catacauma phyllanthopilum P. Henn. Black stromata on leaves of *P. brasiliensis* and *Phyllanthus* sp. in Peru and the Philippines.
Phakopsora phyllanthi Diet. Brown leaf rust on *P. acidus* (*P. distichus*) and *Phyllanthus* sp. in India and the Philippines.
Ravenelia appendiculata Lagh. and Diet. Rust on leaves of *P. acuminatus*, *P. galeottianus*, and *Phyllanthus* sp. in Ecuador, Mexico, and Guatemala.
Ravenelia emblicae Syd. Brown rust pustules on leaves of *P. emblica* and *P. polyphyllus* in India, Burma, and Ceylon.
Ravenelia pygmaea Lagh. and Diet. Dark-brown rust pustules on deformed petioles and stems of *Phyllanthus* sp. in Ecuador.
Schroeteriaster fenestrata Arth. Brown rust pustules on leaves of *P. acidus* (*P. distichus*) in Porto Rico.
Schroeteriaster ulei Syd. Leaf rust on *Phyllanthus* sp. in Brazil.
Uredo phyllanthi P. Henn. Leaf rust on *P. conami* and *Phyllanthus* sp. in Trinidad and Brazil.
Uredo phyllanthi-longifolii Petch. Leaf rust on *P. longifolius* in Ceylon.
Uredo phyllanthi-reticulati Petch. Leaf rust on *P. reticulatus* in Ceylon.

PHYLLAUREA. See Codiaeum.

PHYLLOSTACHYS. Bamboo. See Bambuseae.

PHYMOSIA. See Sphaeralcea.

PHYSALIS. GROUND CHERRY. HUSK TOMATO.
Ascochyta alkekengi Massal. Subcircular to angular dull-brown concentrically zoned leaf spots on *P. alkekengi* in Italy.
Ascochyta physalicola Oud. On stems of *P. alkekengi* in Holland.
Ascochyta physalina Sacc. Dull-yellow leaf spots on *P. alkekengi* in Italy.
Cercosporina physalidicola Speg. Indefinite, pale-brown leaf spots on *P. viscosa* in Argentina.
Phyllosticta physaleos Sacc. and var. **calycicola** Speg. Subcircular, ochraceous leaf spots with brown margins on *P. alkekengi*, *P. peruviana*, and *P. viscosa* in Ceylon, Argentina, Russia, and Italy.
Vermicularia varians Duc. See Solanum.

PHYSOCARPUS. OPULASTER. Ag. NINEBARK. Ornamental shrubs with white flowers, attractive inflated pods, and bright green foliage.
Phyllachora physocarpi Jacz. Black stromata on small red leaf spots on *P. amurensis* in Siberia.

PHYSOSIPHON. Epiphytic orchids. See Orchidaceae.

PHYTEUMA. HORNED RAMPION. Hardy herbaceous perennials used in borders and alpine gardens.
Cercosporella phyteumatis (Frank.) Sacc. Black leaf spots with white centers on *P. spicatum* in Denmark and Germany.
Montagnellina stellaris (Pers.) Theiss. and Syd. Black stromata on leaves of *P. scheuchzeri* and *P. spicatum* in Europe.
Peronospora phyteumatis Fckl. Downy mildew on leaves of *P. betonicaefolium*, *P. nigrum*, *P. orbiculare*, and *P. spicatum* in Switzerland, Norway, Denmark, Austria, Russia, and Germany.
Phyllosticta phyteumatis Gz. Frag. Leaf spot on *P. spicatum* in Spain.
Pyrenopeziza phyteumatis Fckl. On leaves of *Phyteuma* sp. in Switzerland.
Ramularia phyteumatis Sacc. and Wint. Ochraceous leaf spots with brown margins on *P. betonicaefolium*, *P. halleri*, *P. hedraianthifolium*, *P. michelii*, *P. nigrum*, *P. orbiculare*, and *P. spicatum* in Switzerland, Italy, Spain, Bohemia, Austria, and Germany.
Septoria phyteumatis Siegm. Pale leaf spots with dull-brown margins on *Phyteuma* sp. in *Italy*.
Septoria phyteumatum Sacc. On leaves of *Phyteuma* sp. in Austria.
Uromyces caricis-sempervirentis Ed. Fisch. Aecial stage on *P. betonicaefolium* and *P. orbiculare* in Switzerland, Austria, and Germany. Other stages on *Carex* spp.
Uromyces phyteumatum (DC.) Ung. Powdery brown rust pustules on leaves of *P. betonicaefolium*, *P. halleri*, *P. hemisphaericum*, *P. michelii*, *P. nigrum*, *P. orbiculare*, and *P. spicatum* in Europe.

PHYTOLACCA. POKEBERRY. POKEWEED. Herbs and woody plants, some species ornamental.
Ascochyta phytolacca Sacc. and Scalia. Marginal dull-brown leaf spots on *P. americana* (*P. decandra*) in Portugal.
Heterosporium dalmaticum Jaap. On stems of *P. americana* in Dalmatia.
Phyllosticta phytolaccicola Brun. Small circular brown leaf spots on *P. acinosa* in France.
Ramularia harai P. Henn. Effuse dull-brown leaf spots on *P. acinosa* in Japan.
Septoria patouillardi Sacc. and Syd. Circular dull-brown leaf spots on *Phytolacca* sp. in Ecuador.
Septoria phytolaccae Cav. Yellow leaf spots on *P. americana* (*P. decandra*) in Russia, Yugoslavia, and Italy.

PICEA. SPRUCE. Ornamental and timber trees.

Ascochyta piniperda Lindau. Attacks leaves and twigs of *P. abies*, *P. sitchensis*, and *Tsuga* sp. in Belgium, Russia, Germany, and Austria. The fungus also causes a damping-off of seedlings. Reported from North Carolina on *Picea* spp.

Barclayella deformans (Barcl.) Diet. Elongate yellow rust pustules on needles and young twigs of *P. smithiana* (*P. morinda*) in India.

Chrysomyxa abietis (Walbr.) Ung. Small elongate yellow rust pustules on yellow or reddish spots on needles of *P. engelmannii*, *P. abies*, *P. hondoensis*, and *P. pungens* in Japan and Europe.

Chrysomyxa rhododendri DeBy. See Rhododendron.

Coccomyces piceae (Fckl.) Rehm. On needles of *P. abies* in Germany.

Cucurbitaria piceae Borthw. Thin black crustlike stromata enveloping buds of *P. pungens* in Scotland.

Dasyscypha abietis Sacc. On branches of *P. abies* in Finland.

Dasyscypha calycina (Schum.) Fckl. See Larix.

Fabraea abietina Sacc. On the upper surfaces of needles of *P. abies* in Italy.

Gloeosporium conigenum Sacc. and Roum. Anthracnose on cone scales of *P. abies* in France.

Hypodermella macrosporum (Hart.) Lagerh. Black linear fruiting bodies on needles of *P. abies* in Switzerland, Bohemia, and Germany.

Lophodermium abietis Rostr. Black areas on needles of *P. glauca* (*P. canadensis*), *P. abies*, *P. smithiana* (*P. morinda*), *P. sitchensis*, *Pseudotsuga taxifolia*, and *Taxus baccata* in Sweden and Denmark.

Macrophoma excelsa (Karst.) Berl. and Vogl. var. **infestans** Ohl. On needles of *P. abies* in Russia.

Myxosporium abietinum Rostr. See Larix.

Oospora abietum Oudem. See Abies.

Peridermium piceae Barcl. Rust on needles of *P. smithiana* in India.

Peridermium piceae-hondoensis Diet. Rust on needles of *P. hondoensis* in Japan.

Perider nium thomsoni Berk. Rust on needles of *P. smithiana* in India.

Phlyctaena strobilina Karst. and Har. On cone scales of *P. abies* in France.

Phomopsis occulta Trav. On twigs of *P. abies* in Denmark, France, and Great Britain.

Physalospora abietina Prill. and Delacr. See Abies.

Phytophthora fagi R. Hart. See Fagus.

Sclerotiopsis piceana (Karst.) Died. On twigs and needles of *Picea* sp., *Abies alba* and *A. nordmanniana* in Europe.

Thekopsora areolata (Walbr.) P. Magn. See Prunus.

PIERIS. Ornamental shrubs grown for their handsome white flowers.

Exobasidium pieridis P. Henn. Forms concave galls on leaves of *P. ovalifolia* in Japan and India.

Phyllosticta andromedae West. On leaves of *P. floribunda* and *Zenobia cassinefolia* in Belgium.

Rhytisma piceum Berk. Circular black stromata on leaves of *P. ovalifolia* in Indo-China and India.

Rhytisma pierdis Pat. Black irregular fruiting areas on leaves of *P. ovalifolia* in Japan.

PILEA. Mostly weedy herbs, one or two species cultivated as curiosities.

Uredo pileae Barcl. Leaf rust on *P. trinervia* in India.

PILOCARPUS. Shrubs or small trees.

Phyllosticta pilocarpi Pat. Circular white leaf spots with red margins on *P. pinnatifolius* in Brazil.

Puccinia pilocarpi Cke. Black rust pustules on leaves of *P. pinnatus*, *P. pinnatifolius*, and *P. selloanus* in Brazil, Argentina, and Paraguay.

PINGUICULA. BUTTERWORT. Small acaulescent herbs.

Ustilago pinguiculae Rostr. Smut sori in anthers of *P. alpina* and *P. vulgaris* in Denmark, Esthonia, and Switzerland.

PINUS. PINE. Ornamental and timber trees.

Bacterium sp. Bacteria have been found associated with a witches' broom disease of *P. pinaster* (*P. maritima*) in France.

Bacillus pini Vuill. Causes galls on branches of *P. halepensis* in France.

Brachysporium pini-insularis P. Henn. On needles of *P. insularis* in the Philippines.

Cercospora pini-densiflorae Hori. and Nambu. Yellow-brown spots, usually on the upper half of needles of *P. densiflora* in Japan. The disease starts in the upper part of a plant and works down, killing it in a short time. Serious in nursery beds.

Coleosporium asterum (Diet.) Syd. See Aster.

Coleosporium cacaliae Otth. See Cacalia.

Coleosporium euphrasiae (Schum.) Wint. Rust on needles of *P. montana* and *P. sylvestris* in Tibet, Siberia, and Europe. The alternate stage occurs on *Alectrolophus* spp. and *Euphrasia* spp.

Coleosporium inulae Rabh. See Inula.

Coleosporium melampyri Tul. Rust on needles of *P. montana* and *P. sylvestris* in Japan and Europe. Alternate stage on Melampyrum spp.

Coleosporium petasites Lév. Yellow rust pustules on needles of *P. sylvestris* in Japan, Siberia, and Europe. Alternate stage on leaves of *Petasites* spp.

Coleosporium pulsatillae Lév. See Anemone.

Coleosporium senecionis Fr. See Senecio.

Coleosporium sonchi Lév. See Sonchus.

Coleosporium tussilaginis (Pers.) Lév. Yellow rust pustules on needles of *P. sylvestris* in Europe. Alternate stage on *Tussilago farfara*.

Cronartium flaccidum (Alb. and Schw.) Wint. See Paeonia.

Cronartium ribicola Fisch. The blister rust of white pine (*P. strobus*) was introduced with nursery stock into the United States from 1900 to 1910 and now threatens the existence of this important timber tree in all parts of the country. All five-needled pines, including *P. albicaulis*, *P. armandi*, *P. aristata*, *P. balfouriana*, *P. cembra*, *P. griffithii* (*P. excelsa*), *P. flexilis*, *P. koraiensis*, *P. lambertiana*, *P. monticola*, and *P. peuce*, are susceptible. The uredo and telial stages occur on species of *Ribes* and *Grossularia*, practically all species being subject to attack. The disease occurs throughout Europe, in Japan, Siberia, and western Canada.

On the pine the fungus causes swellings on the bark of trunk, branches, and twigs, and after several years breaks through to the surface as blisterlike orange spore masses. The areas of infection may vary from one to many hundred, often so numerous as to form long continuous cankers. Trees of all ages are susceptible and are destroyed by girdling when the infections become numerous. Small trees are killed in from 4 to 6 years. The long incubation period of the mycelium in the tissues without external symptoms, other than the swelling of the bark, makes difficult or impossible the elimination of diseased plants by inspection. The uredo and telial stages occur on the lower leaf surfaces of the *Ribes*, the former appearing as powdery yellow pustules, the latter consisting of numerous small brown, hairlike projections.

PINUS—Continued.

Cucurbitaria pithyophila (Schm. et Kunze) De N. Parasitic on branches of *P. sylvestris* and *Abies alba* (*A. pectinata*) in Great Britain and continental Europe. In Japan the fungus causes a serious disease of *A. firma* called millet-canker. Cankers form on trunks and larger branches and finally take on a gnarled appearance. The bark over these areas cracks and numerous small granules form beneath.

Cylindrosporium acicolum Bres. On needles of *P. sylvestris* in Germany.

Cytosporina septospora Dor. Yellow blotches on needles of *P. montana* in Russia.

Dasyscypha calycina (Schuem.) Fckl. See Larix.

Diplodia pinea Kickx. A wound parasite attacking terminal shoots of *Pinus* spp. in Europe and the Union of South Africa.

Dothichiza pini Sacc. On bark of *P. sylvestris* in Germany.

Fusarium blasticola Rostr. Causes a damping-off of coniferous seedlings, including *P. montana* and *Cryptomeria japonica* in Formosa, Denmark, and Germany. Dark patches with a water-soaked appearance occur on the stems, followed by collapse of the infected plants.

Hypoderma pinicola Brunch. Brownish or yellow-gray areas on needles of *P. sylvestris* in Europe, often causing defoliation.

Hypoderma brachysporium (Rostr.) Tub. (*Hypoderma strobilicola* Brunch.) Black linear fruiting bodies causing yellowing and premature fall of needles of *P. strobus* in Europe. Reported from Pennsylvania.

Hypodermella sulcigena (Duby.) Tub. Causes browning and premature shedding of needles of *P. pinaster*, *P. montana* (*P. pumila*), and *P. sylvestris* in northern Europe.

Lachnella pini Brun. Injures twigs of *Pinus* sp. in Scandinavia.

Leptostroma pinastri Desm. Needles turn red and fall. The disease is reported capable of destroying whole plantations of *P. pinaster*, *P. montana*, and *P. sylvestris* in Italy, France, Belgium, Austria, and Germany.

Leptothyrella mougeotiana Sacc. and Roum. On needles of *Pinus* sp. in France.

Lophodermium gilvum Rostr. On needles of *P. nigra* (*P. austriaca*) in Denmark.

Melampsora pinitorqua Rostr. See Populus.

Mycosphaerella pinifolia Duc. On needles of *P. pinaster* in France.

Myxosporium abietinum Rostr. See Larix.

Peridermium brefeldii Barcl. Needle rust on *P. griffithii* (*P. excelsa*) in India.

Peridermium complanatum Barcl. Two forms of this rust attacking *P. excelsa* and *P. longifolia* in India are recognized: *f. acicola* is a leaf form, while *f. corticola* occurs on the trunk and limbs causing cankers similar to those produced by *Peridermium strobi* on *P. strobus*. It is thought that the alternate host may be *Crataegus* or *Rosa*.

Peridermium corticola Link. Rust on branches of *P. halepensis* in Dalmatia.

Peridermium guatemalense Arth. and Kern. Rust on needles of *P. filifolia* in Guatemala.

Peridermium japonicum Syd. Needle rust on *P. thunbergii* in Japan.

Peridermium kurilense Diet. A rust producing fusoid swellings on branches of *P. pumila* in Japan.

Peridermium orientale Cke. Needle rust on *P. griffithii* and *P. longifolia* in India.

Peridermium pini-thunbergii Diet. Yellow masses of rust spores on needles of *P. massoniana* and *P. thunbergii* in Japan.

Peridermium praelongum Syd. Needle rust on *P. thunbergii* in Japan.

Phacidium infestans Karst. Black stromata on needles of *Pinus* spp. in northern Europe. Premature needle fall results.

Phomopsis pityæ (Sacc.) Grove. See Pseudotsuga.

Phyllosticta strobiligena Desm. On cone scales of *P. strobus* in Germany.

Phytophthora fagi R. Htg. See Fagus.

Phytophthora omnivora DeBy. See Fagus.

Septoria acuum Oud. On needles of *P. sylvestris* in Russia and Holland.

Sphaeropsis necatrix Petri. and Adan. Destroys seeds in the cones of *P. pinea* in Italy.

PIPER. PEPPER. CUBEB. Trees, shrubs, and a few herbs, erect or climbing, with aromatic or pungent properties.

Actinodothis piperis Syd. Black carbonaceous stromata on leaves of *P. retrofractum*, *P. sarmentosum*, and *Piper* sp. in the Philippines and Amboina.

Cercospora pipericola Sacc. and Syd. Subcircular spots on leaves of *P. hispidum* in Jamaica.

Cercospora piperis Pat. Circular brown leaf spots on *Piper* sp. in Ecuador.

Cercospora portoricensis Earle. Numerous dull-brown angular leaf spots on *P. aduncum*, *P. hispidum*, *P. peltatum*, and *P. umbellatum* in Salvador, Porto Rico, Cuba, and Haiti.

Colletotrichum necator Mass. Anthracnose on *Piper* sp. in Malaya.

Colletotrichum piperis Petch. Anthracnose on *P. betle* and *P. nigrum* in Ceylon.

Corticium salmonicolor B. and Br. See Citrus.

Cyclodothis pulchella Syd. Stromata in circles on brown leaf spots on *P. carylistachyum*, and *P. medium* in Porto Rico and the Philippines.

Oidium sp. Powdery mildew on leaves of *P. betle* in Ceylon.

Phyllosticta pipericola Syd. Angular pale-brown leaf spots on *P. nigrum* in Java.

Phyllosticta piperis Tassi. Dull-brown leaf spots on *P. betle* and *P. longum* in Italy and Ceylon. The same name has been given to a species on *P. nigrum* in Java by Hennings.

Physalospora piperina Syd. On stems of *P. nigrum* in India.

Ramularia piperis P. Henn. Circular to angular brown to black leaf spots on *Piper* sp. in Congo.

Rhizoctonia destruens Tassi. See Solanum.

Rosellinia bunodes B. and Br. See Citrus.

Septoriopsis piperis Stev. and Dal. Irregular dirty-white leaf spots with purple-brown borders on *P. medium* in Porto Rico.

Stigmatea piperis Rehm. On leaves of *Piper* sp. in Brazil.

Uredo piperis P. Henn. Brown rust pustules on circular dark-brown leaf spots on *Piper* sp. and *Peperomia hernandifolia* in Porto Rico, Peru, and Brazil.

PIPTADENIA. Leguminous trees similar to Acacia.

Endodothella piptadeniae (P. Henn.) Theiss. and Syd. Black shiny stromata on leaves of *Piptadenia* sp. in Peru and Brazil.

Phyllachora piptadenicola Speg. Tar spot on leaves of *P. rigida* in Argentina.

Puccinia papillifera Syd. Leaf rust on *P. latifolia* in Brazil.

Puccinia piptadeniae P. Henn. Brown rust pustules on leaves of *Piptadenia* sp. in Brazil.

Ravenelia cebil Speg. Leaf rust on *P. macrocarpa* and *P. peregrina* in Porto Rico and Argentina.

Ravenelia henningsiana Diet. Yellow-brown to dark-brown rust pustules on leaves of *Piptadenia* sp. in Brazil.

Ravenelia simplex Diet. Leaf rust on *P. communis* in Brazil.

Ravenelia vills Syd. Leaf rust on *Piptadenia* sp. in Brazil.

FISCIDIA. ICHTHYOMETHIA Ag. Fish poison tree.
Cercospora piscidiae P. Henn. Dull yellowish-brown spots on leaves of *P. erythrina* in Jamaica.
FISONIA. Erect, armed trees or shrubs.
Aecidium pisoniae Arth. and Johnst. Leaf rust on *P. aculeata* in Cuba.
PISTACIA. PISTACHE. Trees or shrubs.
Coryneum pistaciae Pat. Dull-brown leaf spots on *P. lentiscus* in Tunis.
Mycosphaerella pistaciae Cke. On leaves of *P. lentiscus* in Italy.
Phyllosticta lentisci (Pass.) Allesch. and var. **maculicola** Bub. Small, ashen leaf spots on *P. lentiscus* in Italy and Montenegro.
Phyllosticta terebinthi Pass. Large irregular dull-brown to gray leaf spots on *P. terebinthus* in Italy.
Pileolaria terebinthi (DC.) Cast. Leaf rust on *P. atlantica* and *P. terebinthus* in Dalmatia and French North Africa.
Septoria pistaciae Desm. (*Phleospora pistaciae* Petr.). Black irregular leaf spots on *P. lentiscus* and *P. vera* in Asia Minor, Russia, Albania, Yugoslavia, and Italy.
Uromyces terebinthi (DC.) Wint. Leaf rust on *P. falcata*, *P. lentiscus*, *P. mutica*, *P. terebinthus*, and *P. vera* in Europe, Asia Minor, Persia, and Kurdistan.
PISTIA. WATER LETTUCE. Tropical duckweed.
Phyllosticta stratiotis Tassi. Ochraceous indefinite leaf spots on *P. stratiotes* in Italy.
PISUM. PEA. Annual or perennial herbs cultivated as food and forage plants.
Aecidium pisi-formosi Syd. Leaves and stems of *P. formosum* in Persia covered with yellow rust sori.
Bacillus leguminiperdus V. Oven. Produces brown, sunken, irregular areas on pods of *P. sativum* in Germany. Has been found capable by inoculation of attacking pods of *Lupinus* spp. and other legumes.
Bacterium seminum Cayley. This bacterial disease of the pea (*P. sativum*) reported from Great Britain, is carried in the seed and is present in most parts of the plant without visible signs until flowering time. The stems then become brown with a water-soaked appearance, brown linear streaks appear at the bases of petioles, the leaves are spotted yellow, and the pods have an abnormal roughened appearance.
Brachysporium pisi Oudem. Black moldy patches occur on the leaves of *P. sativum*, which turn yellow and die, causing a seedling blight, in Holland.
Cercospora pisa-sativae Stevenson. Small circular yellow to brown leaf spots with darker margins on *P. sativum* in Porto Rico and Cuba.
Marsonia deformans Cke. and Mass. Discolored spots on leaf blades, stipules and petioles of *P. sativum* in Australia.
Peronospora pisi Syd. Downy mildew on leaves of *P. arvense* and *P. sativum* in India, France, Holland, Switzerland, Russia, Scandinavia, Bohemia, and Germany.
Phoma sp. Causes a leaf spot on *P. sativum* in China.
Phyllosticta pisi West. Subcircular to oblong dull-brown or yellow leaf spots with darker margins on *P. sativum* in Belgium.
Rhizoctonia napi West. See Brassica.
Tylenchus dipsaci Kuehn. See Narcissus.
Uromyces pisi (Pers.) DeBy. Cinnamon-brown to dark-brown rust pustules on leaves of *P. arvense*, *P. sativum*, *Lathyrus angustifolius*, *L. heterophyllus*, *L. latifolius*, *L. nissolia*, *L. pisiformis*, *L. platyphyllus*, *L. pratensis*, *L. sativus*, *L. setifolius*, and *L. sylvestris* in Europe, Japan, Siberia, India, and New Zealand. The aecial stage occurs on species of *Euphorbia*. Occurs sparingly in the Middle West.
Ustilago entorrhiza Schroet. A doubtful species of root smut reported on *P. sativum* in Germany.
PITCAIRNIA. Bromeliads.
Puccinia pitcairniae Lagh. Rust on leaves of *P. palmerum* and *Pitcairnia* sp. in Ecuador and Brazil. Reported from New Mexico.
Septoria pitcairniae Syd. Yellow-brown leaf spots on *Pitairnia* sp. in Brazil.
PITHECOCTENIUM. MONKEY COMB. Ornamental vines cultivated for their showy flowers.
Prospodium amphilophii (Diet. and Holw.) Arth. Leaf rust on *P. echinatum*, *P. hexagonum*, *P. muricatum*, and *Amphilophium molle* in Mexico, Isle of Pines, and Costa Rica.
Puccinia cordobensis P. Henn. Rust on branches of *P. cynanchoides* in Argentina.
Puccinia depallens Arth. and Holw. Leaf rust on *P. muricatum* in Costa Rica and Guatemala.
Puccinia medusa Speg. Powdery rust pustules on leaves of *P. clematideum* in Argentina.
Puccinia phlyctopus Syd. Brown to black powdery rust pustules on leaves of *P. hexagonum* in Mexico.
Puccinia pithecoctenii Pazschke. Dull-brown to dark-brown rust pustules on leaves of *Pithecoctenium* sp. in Brazil.
PITHECOLOBIUM. Tropical trees and shrubs planted for ornament and shade.
Corticium sp. See Thea.
Corticium salmonicolor B. and Br. See Citrus.
Cylindrociadium pithecolobii Petch. On leaves of *P. saman* in Ceylon.
Diorchidium acanthostephum Syd. Leaf rust on *Pithecolobium* sp. in Brazil.
Gloeosporium pithecolobii Koord. Large irregular gray-brown spots on leaves of *P. lobatum* in Java.
Maravalia pallida Arth. and Thaxt. Leaf rust on *P. latifolium* in Trinidad.
Microstoma pithecolobii Lamk. White irregular spots on lower leaf surfaces of *P. saman* in Porto Rico.
Montagnellina pithecolobii (Racib.) v. Hoeh. Black stromata on yellowish leaf spots on *P. lobatum* in Java.
Phyllosticta pithecolobii Young. (*P. pithecolobii-monensis* Young.). More or less circular pale-yellow leaf spots with dark-brown slightly raised margins on *P. unguis-cati* in Porto Rico.
Ravenelia amazonica Syd. Leaf rust on *P. corymbosum* in Brazil.
Ravenelia minuta Syd. Leaf rust on *Pithecolobium* sp. in Brazil.
Ravenelia pileolarioides Syd. Leaf rust on *Pithecolobium* sp. in Brazil.
Septoria pithecolobii Roum. Leaf spot on *Pithecolobium* sp. in Paraguay.
Stigmachora controversa (Starb.) Theiss. and Syd. Shiny, black stromata on leaves of *P. scalare* and *Pithecolobium* sp. in Bolivia and Argentina.
Uredo bomfimensis P. Henn. Brown rust sori on yellow circular leaf spots on *Pithecolobium* sp. in Brazil.
Uredo pithecolobii P. Henn. Rust deforming twigs of *Pithecolobium* sp. in Brazil.
Uredo raciborskii Sacc. and Syd. Brown leaf rust on *P. lobatum* in Java.
Uromyces albescens Syd. Brown rust pustules on light-brown leaf spots on *P. glomeratum* in Brazil.

PITTOSPORUM. Hardy or half-hardy evergreen woody plants.
Helicobasidium tanakae Miy. See Morus.
Mycosphaerella rubiginosa (Cke.) Lind. On leaves of *P. rubiginosum* in Australia.
Phyllosticta pittospori P. Brun. Subcircular to angular light-brown leaf spots on *P. tobira* in France and Italy.
Physalospora pittospori d'Alm. and Cam. Brown apical leaf spots on *Pittosporum* sp. in Portugal.
Septoria pittospori P. Brun. Circular deep-brown leaf spots on *P. tobira* in France and Italy.
Trabutia pittospori (P. Henn.) Theiss. and Syd. Irregular black opaque stromata on leaves of *P. abyssinicum* in Abyssinia.
Uredo pittospori P. Henn. Rust on leaves of *P. abyssinicum* in Abyssinia.
PLACEA. Amaryllislike bulbous plants from Chile.
Puccinia placeae Diet. and Neg. Yellow to dark-brown rust pustules on leaves of *Placea* sp. in Chile.
PLAGIANTHUS. Trees or shrubs.
Puccinia plagianthis McAlp. Brown rust pustules on leaves and flower stalks of *P. sidoides* in Tasmania.
PLATANUS. PLANE TREE. Erroneously called sycamore. Shade trees.
Guignardia cylindrica (Sacc. and Speg.) Lind. On leaves of *P. orientalis* in Italy and Denmark.
Phyllosticta platani Sacc. and Speg. On leaves of *P. orientalis* in Russia and Italy.
Microstroma platani Eddel. and Eng. Small circular grayish-white leaf spots on *P. occidentalis* in Sweden and Germany.
PLATYCODON. BALLOON FLOWER. Perennial, glaucous, erect herbs used in border plantings.
Septoria platycodonis Syd. Circular to irregular, white leaf spots on *P. grandiflorum* in Japan.
PLECTOCOMIA. East Indian climbing palms. See Palmae.
PLECTRANTHUS. Herbs and subshrubs with blue to lilac flowers.
Aecidium plectranthi Barcl. Rust on leaves of *P. coetsa*, *P. glaucocalyx*, and *P. scrophularioides* in Japan and India.
Coleosporium plectranthi Barcl. Yellow to golden rust pustules on leaves of *P. excisus*, *P. gerardianus*, *P. glaucocalyx*, *P. inflexus*, *P. longitubus*, *P. trichocarpus*, and *Ocimum* sp. in Japan and India.
Puccinia luandensis Syd. Brown powdery rust pustules on leaves of *P. laxiflorus* and *P. nudiflorus* in the Union of South Africa.
Puccinia plectranthi Thuem. Brown leaf rust on *P. laxiflorus* in the Union of South Africa.
PLECTRONIA. Woody plants cultivated for their flowers.
Aecidium baumianum P. Henn. Leaf rust on *P. abbreviata* in the Union of South Africa.
Aecidium busseanum P. Henn. Rust on red-brown leaf spots on *P. hispida* in Tanganyika.
Aecidium incomparabile Syd. Rust forming galls on leaves of *P. arnoldiana* in the Congo.
Aecidium plectroniae Cke. Leaf rust on *P. barbata* and *P. guerkii* in Natal and Queensland.
Hemileia canthii B. and Br. Golden rust pustules on leaves of *P. campanulata*, *P. ciliata*, *P. huillensis*, *P. parviflora*, and *P. peduncularis* in Ceylon, India, Philippines, and the Union of South Africa.
Uredo detergibilis (Thuem.) P. Henn. Rust on leaves of *P. huillensis* in the Union of South Africa.
PLEUROSPERMUM. Biennial or perennial hardy herbs.
Phyllosticta pleurospermi Died. Angular gray leaf spots on *P. austriacum* in Germany.
PLEUROTHALLIS. See Orchidaceae.
PLUMBAGO. LEADWORT. Subshrubs or herbs cultivated for their phloxlike flowers.
Ascochyta plumbaginicola P. Henn. On stems of *P. europaea* in Italy and Germany.
Ascochyta plumbaginis Sacc. Ochraceous-brown leaf spots on *P. europaea* in Italy and Germany.
Cercospora plumbaginea Sacc. and D. Sacc. Subcircular olivaceous, then light-buff, leaf spots on *P. europaea* in Italy.
Phyllosticta larpentae Tassi. Subcircular ashen-white leaf spots on *P. larpentae* (*Ceratostigma plumbaginoides*) in Italy.
PLUMERIA. FRANGIPANI. Tropical trees with milky juice grown for their showy flowers.
Ascochyta plumieria P. Henn. On *Plumeria* sp. in Brazil.
Coleosporium domingensis (Berk.) Arth. Golden rust pustules on leaves of *P. lutea*, *P. rubra*, and *Plumeria* sp. in Guatemala, Peru, and the West Indies.
Coleosporium plumierae Pat. Golden rust pustules on leaves of *P. alba*, *P. emarginata*, *P. krugii*, *P. obtusa*, and *P. rubra* in Cuba, Porto Rico, Mexico, Guatemala, and Guadeloupe.
Phyllosticta plumieriae Tassi. Small gray to white leaf spots on *P. alba* in Italy.
Septoria plumieriae Sacc. and Syd. Circular light-brown zoned leaf spots on *P. obtusa* in Central America and the Bahamas.
POA. BLUE GRASS. Perennial grasses, some species cultivated as lawn, forage, and ornamental grasses.
Ascochyta kerguelensis P. Henn. On leaves of *P. kerguelensis* (*Festuca scoparia*) in the Kerguelen Islands.
Cladochytrium graminis Buesgen. See Festuca.
Claviceps setulosa Sacc. Sclerotia in ovaries of *Poa* sp. in Switzerland and France.
Dilophia graminis (Fckl.) Sacc. See Triticum.
Entyloma crepinianum Sacc. and Roum. Doubtful smut species on *Poa* sp. in France.
Hadrotrichum virescens Sacc. and Roum. var. **poae** Sacc. Oblong brown leaf spots on *Poa* sp. in France, Germany, and Austria.
Leptosphaeria sparsa (Fckl.) Sacc. On leaves and culms of *Poa* sp., *Agrostis* sp., and *Calamagrostis* sp. in Switzerland.
Phyllachora poae (Fckl.) Sacc. Black stromata on leaves of *P. alpina*, *P. nemoralis*, *P. pratensis*, and *P. sudetica* in central Europe.
Phyllosticta kerguelensis P. Henn. On leaves of *P. cookii* in the Kerguelen Islands.
Protomyces rhizobius Trail. Small root nodules on *P. annua* in Scotland.
Puccinia cognatella Bub. Yellow to dark-brown rust pustules on elongate yellow spots on *P. nemoralis* in Bohemia.
Puccinia exigua Diet. Leaf rust on *P. annua* in Brazil.
Puccinia poae-trivialis Bub. Yellow to black rust pustules on leaves of *P. trivialis* in Bohemia.
Puccinia subandina Speg. Leaf rust on *P. chorizanthae* in Argentina.
Roumegueria gangraena (Fr.) Sacc. On leaves of *P. bulbose*, *P. nemoralis*, and *P. pratensis* in Spain, Italy, and Tripoli.
Scolecotrichum compressum Allesch. On leaves of *P. compressa* in Germany.
Septoria culmifida Lind. See Phleum.
Septoria macrosperma Speg. On leaves of *P. forsteri* in Chile.
Septoria nebulosa Rostr. See Calamagrostis.
Septoria oudemansii Sacc. On culms of *P. flexuosa* and *P. nemoralis* in Holland.
Septoria poae-annuae Bres. and var. **sepulta** Gz. Frag. On leaves and glumes of *P. annua*, *P. bulbosa*, and *P. pratensis* in Tripoli, Spain, and Germany.

POA—Continued.
Septoria poae-trivialis Cocc. Small subcircular yellow sunken spots on leaves and culms of *P. nemoralis* and *P. trivialis* in Russia, Italy, and Germany.
Tilletia hordei Schoeyen. See Avena.
Uredo porophila Speg. Rust on leaves of *P. lanigera* in Argentina.
Uromyces chubutensis Speg. Leaf rust on *P. chubutensis* in Argentina.
Uromyces poae Rabh. Leaf rust on *P. annua, P. bulbosa, P. compressa, P. fertilis, P. nemoralis, P. palustris, P. prafensis, P. trivialis, P. violacea*, and *Agrostis alba* in Europe, Asia Minor, Nova Scotia, and north Africa. The aecial stage occurs on species of *Ranunculus*.
Uromyces poae-alpinae W. Rytz. Brown to black rust pustules on leaves of *P. alpina* in Switzerland.
Uromyces sesseli-graminis Ed. Fisch. See Arrhenatherum.
PODOCARPUS. NAGEIA Ag. Ornamental trees grown for their evergreen foliage.
Corynelia bispora Fitzp. Small black stromata on lower leaf surfaces of *P. milanjiana* in central Africa.
Corynelia brasiliensis Fitzp. Parasitic on leaves of *Podocarpus* sp. in Brazil.
Corynelia jamaicensis Fitzp. Circular to elliptical black stromata on leaves of *P. purdieana* in Jamaica.
Corynelia nipponensis Fitzp. Black stromata on leaves of *P. macrophylla* in Japan.
Corynelia oreophila (Speg.) Starb. Black stromata on leaves of *P. augustifolia, P. sellowii, P. chilina*, and *P. macrostachya* in Brazil, Chile, Colombia, Bolivia, and Costa Rica.
Corynelia portoricensis Fitzp. Raised black stromata on leaves of *P. coriacea* in Porto Rico.
Corynelia tropica (Auers. and Rabh.) Starb. Irregularly elongated black stromata on leaves and stems of *P. andina, P. chilina, P. costalis*, and *P. saligna* in Chile and the Philippines.
Corynelia uberata Fr. Circular to irregular black stromata on leaves, stems, and fruit of *P. costalis, P. elongata, P. falcata, P. gracilior, P. latifolia, P. nagi, P. nulangianus*, and *P. thunbergii* in Japan, Philippines, New Zealand, and central Africa.
Septoria arethusa Penz. See Citrus.
Septoria podocarpi Niessl. Irregular ashen leaf spots with narrow dull-brown margins on *P. thunbergii* in Italy and the Union of South Africa.
Thielaviopsis podocarpi Petri. A doubtful species on roots of *Podocarpus* sp. in Italy.
Tripospora tripos (Cke.) Lind. Parasitic on leaves and green parts of stems of *P. elongata* and *P. thunbergii* in the Union of South Africa and on *P. lamberti* in Brazil.
PODOLEPIS. Australian herbs cultivated for their yellow, pink, or purple flower heads.
Puccinia podolepidis McAlp. Bright-orange and black rust sori on leaves of *P. longipedata* in Australia.
PODOPHYLLUM. MAY APPLE. Herbs.
Phomopsis podophylli Grove. On leaves of *P. peltatum* in Great Britain.
POGOSTEMUM. PATCHOULI. Herbs or shrubs.
Puccinia princeps Syd. Rust causing large tumors (1 to 3 centimeters in diameter) on branches of *Pogostemum* sp. in India.
POINCIANA. Royal poinciana. Flamboyan. Ornamental leguminous trees and shrubs.
Cercospora bakeriana Sacc. On twigs and leaves of *P. (Caesalpinia) pulcherrima* in the Philippines.
Fomes lamaoensis Murr. See Hevea.
Ravenelia humphreyana P. Henn. Powdery brown rust pustules causing defoliation of *P. pulcherrima* in Mexico, Costa Rica, Guatemala, Cuba, Jamaica, and Porto Rico.
Septogloeum poincianae Syd. Indefinite yellow areas on leaves of *P. alata* in India.
POLEMONIUM. GREEK VALERIAN. JACOB'S LADDER. Flower-garden herbs with blue or purple flowers.
Ascochyta polemonii Rostr. On stems and leaves of *P. coeruleum* in Italy and Denmark.
POLLIA. Perennial herbs.
Ustilago nawaschini Racib. Smut destroying flowers of *Pollia* sp. in Java.
POLYGALA. Annual or perennial herbs or subshrubs.
Aecidium palustre Mont. Rust on leaves and stems of *Polygala* sp. in Brazil.
Cercospora polygalae P. Henn. On leaves of *P. paniculata* in Brazil.
Phyllosticta chamaebuxi Allesch. Ochraceous leaf spots with red margins on leaves of *P. chamaebuxus* in Germany.
Ramularia polygala (Schroet.) Sacc. and Syd. Light-brown spots often occupying most of leaf surface on *P. vulgaris* in Silesia.
Septoria polygalicola Höll. Large ochraceous leaf spots on *P. comosa* in Hungary
Uredo peribuyensis Speg. Brown leaf rust on *P. americana, P. acicularis*, and *Polygala* sp. in Guatemala, Argentina, and Mexico.
Uredo polygalae Diet. Dull-yellow rust sori on yellow leaf spots on *P. japonica* and *P. ohlendorfiana* in Japan.
Uromyces polygalae Grove. Leaf rust on *P. persicariaefolia* and *Polygala* sp. in Uganda.
POLYGONATUM. SOLOMON'S-SEAL. Perennial herbs with simple stems and creeping rootstocks.
Cercospora polygonati Rostr. Subcircular pale-brown leaf spots with dark-purple margins on *P. multiflorum* in Denmark.
Cylindrosporium komarowi Jacz. On *P. humile* in Russia.
Heterosporium allii Ell. and Mart. var. **polygonati** Oud. On leaves of *P. multiflorum* in Holland.
Mycosphaerella asteroma (Fr.) Lind. See Convallaria.
Phyllosticta polygonati Bauml. Brown leaf spots on *P. multiflorum* and *P. officinale* in Hungary and Yugoslavia.
Phyllosticta woronowii Woron. On leaves of *P. officinale* in Russia.
Rhytisma punctum Chev. Black stromata on leaves of *P. officinale* in France.
Sclerotinia richteriana P. Henn. Causes a blighting of *P. multiflorum* in Germany.
Septoria brunneola Fr. See Convallaria.
Septoria polygonati Kab. and Bub. Subcircular to elliptical gray leaf spots with purple-brown margins on *P. multiflorum* in Bohemia.
POLYGONUM. SMARTWEED. Knotweed. Erect or twining herbs, a few species grown for ornament.
Ascochyta polygonicola Kab. and Bub. Circular to irregular, often confluent, brown zoned leaf spots with yellow margins on *P. lapathifolium* in Bohemia.
Cercospora paludicola Speg. Small angular ochraceous-brown leaf spots on *Polygonum* sp. in Argentina.
Cercosporella polygoni P. Henn. and Shir. Circular brown leaf spots with red-brown margins on leaves of *P. multiflorum* in Japan.
Entyloma schweinfurthii P. Henn. Smut sori on black leaf spots on *P. monspeliense* in Egypt.
Ovularia bistortae (Fckl.) Sacc. Brown-gray leaf spots with purple margins on *P. bistorta* and *P. viviparum* in Japan and Europe.
Phyllosticta melanogena Sacc. Circular to angular dark-brown leaf spots on *Polygonum* sp. in Siberia.

POLYGONUM—Continued.

Phyllosticta polygoni-aviculare Petr. Small yellowish-brown leaf spots on *P. aviculare* in Austria.

Phyllosticta polygonorum Sacc. Subcircular whitish leaf spots with reddish margins on *P. multiflorum*, *P. persicaria*, and *Fagopyrum esculentum* in Japan, Formosa, Russia, and Italy.

Phyllosticta tokutarol Speg. Small irregular or circular brown leaf spots on *P. multiflorum* in Japan.

Pseudopeziza bistortae (Lib.) Fckl. On leaves of *P. bistorta* and *P. viviparum* in Greenland and Europe.

Puccinia angelicae-mamillata Kleb. See Angelica.

Puccinia astrantiae-vivipari Semad. See Astrantia.

Puccinia calumnata Syd. Leaf rust on *P. weyrichi* in Japan.

Puccinia congesta B. and Br. Leaf rust on *P. chinense* and *P. tomentosum* in China and the Philippines.

Puccinia mammillata Schroet. Leaf rust on *P. bistortum* and *P. viviparum* in Russia, Sweden, Hungary, and Germany. Reported from New Jersey.

Puccinia monticola Kom. Brown rust pustules on leaves of *P. alpinum* and *P. polymorphum* in Turkestan.

Puccinia nitida Barcl. Brown to black rust pustules on leaves of *P. amplexicaulis* and *P. chinense* in India.

Puccinia polygoni-sachalinensis Pat. and Har. Powdery brown rust pustules on leaves of *P. sachalinense* in Japan.

Puccinia septentrionalis Juel. Leaf rust on *P. viviparum* and *Thalictrum alpinum* in Greenland, Iceland, and northern Europe. Reported from California.

Puccinia solmsii P. Henn. Leaf rust on *P. acuminatum*, *P. chinense*, *P. nipponense*, and *P. posumbum* in India, Indo-China, Japan, and Brazil.

Puccinia sommerfeltii Johans. See Thalictrum.

Ramularia bistortae Fckl. On leaves of *P. bistorta* in Siberia.

Septoria polygonicola (Lasch.) Sacc. Circular pale-ochraceous leaf spots on *P. convolvulum*, *P. orientale*, and *P. persicaria* in China, Russia, Yugoslavia, Austria, and Germany.

Sphacelotheca alpina Schellenb. Brown smut sori in sheaths and peduncles of *P. alpinum* in Switzerland.

Ustilago bosniaca Beck. A smut producing powdery, dark-violet spore masses in peduncles and inflorescences of *P. alpinum* in Yugoslavia.

Ustilago emodensis Berk. A smut forming clustered outgrowths up to 1 inch long on stems of *P. chinense* in Ceylon, Java, India, Australia, and the Philippines.

Ustilago koordersiana Bref. Smut in ovaries of *P. barbatum* and *Polygonum* sp. in China, Java, and the Philippines.

Ustilago marginalis (Link.) Lév. Smut sori as swellings on leaves of *P. bistorta* in central Europe.

Ustilago moelleri Bref. Smut forming swollen masses of dark-brown spores in fruit of *P. hispidum* in Brazil.

Ustilago rosulata Syd. Powdery violet smut sori in ovaries of *P. chinensis* in the Philippines.

Ustilago tuberculiformis Syd. Smut sori with powdery yellow-brown spore masses in purple-brown leaf spots on *P. chinense* and *P. runcinatum* in China and India.

POLYMNIA. Coarse viscid composites.

Phyllachora periata Syd. Irregular black stromata on leaves of *P. glabrata* in Colombia.

Uredo banisteriicola P. Henn. Cinnamon-brown rust sori on leaves of *P. sylphoides* in Brazil.

Uromyces polymniae (P. Henn.) Diet. and Holw. Brown rust pustules on leaves of *P. glabrata*, *P. maculata*, and *P. sylphoides* in Mexico, Colombia, and Brazil.

POLYPODIUM. POLYPODY. Ferns.

Hyalopsora japonica Diet. Rust on leaves of *P. senanense* in Japan.

Laestadia polypodii Sacc. and Magn. On *P. vulgare* in Italy.

Milesina dietel'ana (Syd.) P. Magn. Yellow-brown rust sori on small sunken spots on leaves of *P. vulgare* in Europe.

Mycosphaerella polypodii (Rabh.) Magn. On *P. vulgare* in Denmark, Switzerland, and Germany.

Phyllosticta polypodii-australis P. Henn. Irregular pale-gray leaf spots on *P. australum* in Kerguelen Islands.

Septoria polypodii Grove. On leaves of *P. phegopteris* in Great Britain.

Sorica maxima (B. and C.) Giesenh. Small black stromata on leaves of *P. crassifolium*, *P. phyllitidis*, *P. punctatum*, and *P. schomburghianum* in Porto Rico, Cuba, St. Domingo, Ecuador, Venezuela, and Brazil.

POLYSTACHYA. See Orchidaceae.

POLYSTICHUM. HOLLYFERN. Christmas fern.

Exoascus filicina (Rostr.) Sacc. Small definite leaf spots on *P. spinulosum* and *Phegopteris vulgaris* in Sweden and Russia.

Magnusiella lutescens (Rostr.) Sadeb. Yellow leaf spots on *P. thelypteris* in Denmark.

Metasphaeria polystichi Feltg. On petioles of *P. filix-mas* in Luxemburg.

PONGAMIA. Shrubs native of the Orient.

Cryptomyces pongamiae (B. and Br.) Sacc. Black irregular pitchlike leaf spots on *P. glabra* in India.

Fusicladium pongamiae Syd. On leaves of *P. glabra*, *P. mitis*, and *P. pinnata* in India and the Philippines.

Phyllachora pongamiae (B. and Br.) Petch. Shiny black stromata on leaves of *P. glabra* and *P. pinnata* in India, Ceylon, Java, and the Philippines.

Ravenelia hobsoni Cke. Brown powdery rust pustules on leaves of *P. glabra* in India and Ceylon.

PONTEDERIA. PICKEREL WEED. Perennial aquatic herbs.

Phyllosticta pontederiae Syd. Irregular dull-brown leaf spots on *Pontederia* sp. in Brazil.

POPULUS. POPLAR. Aspen. Cottonwood. Timber, pulp, and shade trees.

Ascochyta populi Delacr. On leaves of *P. canadensis* in Italy.

Ascochyta populicola Kab. and Bub. On leaves of *P. alba* in Bohemia.

Ascochyta populina Sacc. Angular white leaf spots with dark borders on *P. nigra* in Italy.

Ascochyta tremulae Thuem. Subcircular small grayish leaf spots with dull-brown margins on *P. tremula* in Austria.

Bacillus populi Brizi. This bacterium is reported from Italy and France as the cause of a canker disease of trunks and branches of *P. alba*, *P. nigra*, and *P. tremula*.

Didymosphaeria populina Vuill. (*Fusicladium tremulae* Fr.). Tips of young shoots are killed and blackened, the seasonal recurrence of which destroys the crowns of infected trees. Blackened patches occur on the leaves, particularly at the tips and along margins. On *P. alba pyramidalis*, *P. canescens*, *P. nigra*, *P. tremula*, and *P. tremuloides* in Russia, Sweden, France, Denmark, Austria, and Germany. Common in Canada.

POPULUS—Continued.

Diplodia gongrogena Tem. Causes hypertrophies of bark and wood of *P. tremula* in Germany.

Hyalopus populi Nypels. Said to cause a canker of *P. canadensis* in Belgium.

Hyphoderma roseum (Pers.) Fr. On bark of *Populus* sp., *Alnus* sp., and *Juglans* sp. in Great Britain, Sweden, Italy, and Germany.

Laestadia niesslii Kze. On leaves of *P. alba pyramidalis* in Germany.

Leptosphaeria livida Vogl. Irregular grayish-white leaf spots on *P. canadensis* in Italy.

Leptothyrium populi Fckl. On leaves of *P. nigra*, *P. alba pyramidalis*, and *P. tremula* in Italy, Austria, and Germany.

Macrophoma populi-nigrae (Allesch.) Tass. On leaves of *P. nigra* in Germany.

Marsonia curvata Bub. and Kab. Irregular and confluent brown leaf spots on *P. nigra* in Bohemia. Reported from Utah.

Marsonia piriformis (Riess.) Sacc. Dark-brown leaf spots on *P. alba* in Europe. Reported from Utah.

Marsonia populina Schnabl. Leaf spots on *P. nigra* in Europe.

Melampsora allii-populina Kleb. Yellow or golden to brown rust pustules in yellow leaf spots on *P. alba*, *P. angulata*, *P. balsamifera*, *P. canadensis*, *P. deltoides*, and *P. nigra*, in Argentina and Europe. Alternate stage on *Allium ascolonicum*, *A. cepa*, *A. oleraceum*, *A. sativum*, *A. schoenoprasum*, *A. ursinum*, and *A. vineale*.

Melampsora ciliata Barcl. Leaf rust on *P. ciliata* in northern India.

Melampsora laricis R. Hartig. Yellow, then brown, rust pustules on leaves of *P. alba*, *P. balsamifera*, *P. canescens*, *P. tremula*, *Larix decidua*, *L. griffithii*, and *L. sibirica* in Europe and Japan.

Melampsora larici-populina Kleb. Leaf rust on *Larix decidua* and practically all species of *Populus* in Japan, Argentina, and Europe.

Melampsora magnusiana G. Wagn. Golden and brown rust pustules on leaves of *Chelidonium major*, *Corydalis cava*, *C. digitata*, *C. fabacea*, *C. incisa*, *C. intermedia*, *C. laxa*, *C. pallida*, *C. solida*, *Populus alba*, *P. canescens*, and *P. tremula* in Japan, China, Siberia, and Europe. Apparently not distinct from *M. tremulae* Tul., which occurs in the United States.

Melampsora pinitorqua Rostr. Yellow powdery aecia on *Pinus montana* and *P. silvestris*. Telia on *Populus tremuloides*, *P. tremula*, and *P. alba pyramidalis* in Russia, Denmark, Italy, and Spain.

Melampsora pruinosae Tranzsch. Pale-yellow to red-brown rust sori on leaves of *P. pruinosa* in Siberia.

Melampsora pulcherrima (Bub.) R. Maire. Leaf rust on *P. alba* in Spain.

Melampsora rostrupii G. Wagn. Yellow and dark-brown rust sori on leaves of *P. alba*, *P. alba pyramidalis*, *P. balsamifera*, *P. canadensis*, *P. canescens*, *P. tremuloides*, *P. nigra*, *P. tremula*, and *Mercurialis perennis* in Europe.

Micrococcus dendroporthos Ludw. Small gum-producing cankers on bark of young trees of *Populus* sp. in Argentina.

Micrococcus populi Delacr. Bacterial cankers on stems and branches of seedlings and on trunks of older trees of *P. deltoides* and *P. nigra* in France and Italy.

Mycosphaerella macularis (Fr.) Schroet. On leaves of *P. tremula* in Europe. Reported from Kansas.

Mycosphaerella populi (Auersw.) Schroet. On leaves of *P. deltoides*, *P. nigra*, and *P. alba pyramidalis* in Europe.

Napicladium asteroma (Fckl.) Allesch. On leaves of *P. alba* in Germany.

Phoma populi-nigrae Allesch. On leaves of *P. nigra* in Germany.

Phyllohendersonia alcides (Sacc.) Tass. On leaves of *P. nigra* in Italy.

Phyllohendersonia foliorum (Fckl.) Tass. On leaves of *P. nigra* in France, Italy, and Germany.

Phyllosticta adjuncta Bub. and Sere. On leaves of *P. euphratica* in Russia.

Phyllosticta bacteriiformis (Pass.) Sacc. On leaves of *P. nigra* in Italy.

Phyllosticta cinerea Pass. Ashen-white leaf spots on *P. alba* in Italy.

Phyllosticta ostrospora Sacc. See Morus.

Phyllosticta populea Sacc. Irregular white leaf spots with dull-brown margins on *P. alba*, *P. tremula*, and *Populus* sp. in Italy and China.

Phyllosticta populina Sacc. Angular white leaf spots with black margins on *P. nigra* and *P. alba pyramidalis* in Yugoslavia, Albania, Italy, and Denmark. Reported from Wisconsin.

Phyllosticta populorum Sacc. and Roum. On leaves of *P. balsamifera* and *P. canadensis* in Italy, France, Portugal, and Germany.

Phyllosticta prominens Oud. Brown leaf spots on *P. balsamifera* in Holland.

Sclerotium scutellatum A. S. See Acer.

Septoria aegerina Pass. On leaves of *P. nigra* in Italy.

Septoria atrosanguinea Bub. and Sere. On leaves of *P. tremula* in Russia and Poland.

Septoria butuliformis Bub. and Sere. On leaves of *P. euphratica* in Russia.

Septoria candida (Fckl.) Sacc. White leaf spots on *P. alba* in Italy, France, and Germany.

Septoria marmorata Kab. and Bub. Subcircular to irregular brown, then pale-yellow, leaf spots on *P. tremula* in Denmark and Italy.

Septoria osteospora Brl. On leaves of *P. nigra* in France.

Septoria tremulae Pass. Indefinite dull-brown confluent leaf spots on *P. tremula* in Italy.

Tilaeosporina tremulae (Lib.) Luyk. Anthracnose on leaves of *P. alba* and *P. tremula* in Europe. Reported in a few cases from the United States under the name *Gloeosporium tremulae* (Lib.) Pass.

PORTULACA. Purslane. Low, fleshy, annual or perennial herbs.

Phyllosticta portulacae Sacc. and Speg. Subcircular white leaf spots with raised dull-brown margins on *P. oleracea* in Italy.

Tuberculina portulacarum Speg. Dull-brown leaf spots on *P. plan-operculata* in Argentina.

POSOQUERIA. Glabrous shrubs and small trees.

Aecidium posoqueriae Diet. Leaf rust on *P. latifolia* in Brazil.

POTENTILLA. Cinquefoil. Perennial herbs and shrubs.

Entyloma pustulosum Sacc. and Fautr. Leaf smut on *P. anserina* in France.

Laestadia potentillae Rostr. On leaves of *P. maculata* and *P. nivea* in Iceland.

Peronospora potentillae anserinae Gäum. Downy mildew on leaves of *P. anserina* in France and Germany.

Peronospora potentillae reptantis Gäum. Downy mildew on leaves of *P. recta*, *P. reptans*, and *P. supina* in northern Europe.

Peronospora potentillae sterilis Gaum. As above on *P. sterilis* in Switzerland and Germany.

Phleospora fragariae (Br. and Har.) Petr. See Fragaria.

Phragmidium fragariastri (DC.) Schroet. Yellow to black rust pustules on leaves of *P. alba*, *P. alchemilloides*, *P. carniolica*, *P. fragariastrum*, *P. hybrida*, *P. micrantha*, *P. splendens*, *P. sterilis*, *Fragaria collina*, and *F. indica* in Europe.

Phragmidium lacelanum Barcl. Yellow rust pustules on leaves of *P. argyrophylla* in India.

Phragmidium nepalense Barcl. Yellow to black rust sori on leaves of *P. nepalensis* in India.

POTENTILLA—Continued.

Phragmidium papillatum Diet. Yellow to brown rust pustules on lower leaf surfaces of *P. strigosa* in Siberia.

Phyllosticta argentinae Desm. On leaves of *P. anserina*, *P. argentea*, and *Comarum palustre* in Siberia and Austria.

Phyllosticta potentillae Desm. On leaves of *P. fragarioides* in Siberia.

Phyllosticta tormentillae Sacc. Irregular pale ochraceous leaf spots on *P. tormentilla* in Italy.

Physalospora potentillae Rostr. On stems of *P. maculata* in Greenland.

Physoderma vagans Schroet. See Ranunculus.

Ramularia anserina Allesch. Subcircular, then confluent, ochraceous leaf spots on *P. anserina* in Germany.

Ramularia martianoffiana Thuem. Large irregular dull-violet leaf spots on *P. strigosa* in Siberia.

Septoria corcontica Kab. and Bub. Circular to angular dull-green, then yellowish, leaf spots with brown-purple margins on *P. procumbens* and *P. tormentilla* in Bohemia.

Septoria fragariae Desm. See Fragaria.

Septoria tormentillae Rob. and Desm. Irregular, often oblong, brown leaf spots with rose-colored margins on *P. erecta*, *P. reptans*, *P. sylvestris*, and *P. tormentilla* in Russia, France, Denmark, Italy, Belgium, and Germany.

Synchytrium globosum Schroet. Small rough galls on leaves and stems of *P. reptans*, *Achillea millefolium*, *Cirsium oleraceum*, *Galium mollugo*, *Myosotis palustris*, *Sonchus asper*, *Veronica anagallis*, *V. beccabunga*, *V. chamaedrys*, *V. scutellata*, *Viola canina*, *V. odorata*, *V. persicifolia*, *V. silvatica*, and *V. stagnina*, in northern Europe.

Synchytrium pilificum Thomas. Small galls on leaves and stems of *P. tormentilla* in Germany.

Uredo nervicola Tranz. Leaf rust on *P. fragarioides* in Manchuria.

Venturia potentillae (Fr.) Cke. On leaves of *P. anserina*, *P. bifurca*, *P. cinerea*, *P. reptans*, and *P. tormentilla* in Siberia and Europe.

POTERIUM. BURNET. Rosaceous shrubs. (See also Sanguisorba.)

Ovularia bulbigera (Fckl.) Sacc. On leaves of *Sanguisorba minor* (*P. sanguisorba*) in France.

Phragmidium sanguisorbae (DC.) Schroet. Yellow to golden rust sori on leaves of *P. eriocarpum*, *P. magnolium*, *P. mauritanicum*, *P. muricatum*, *P. myriophyllum*, *P. polygamum*, *P. verrucosum*, *P. villosum*, *Sanguisorba dictyocarpa*, *S. duriae*, *S. media*, and *S. minor* in Algeria, Tunis, Asia Minor, Turkestan, and Europe.

POURTHIAEA. See Photinia.

PRATIA. Slender prostrate or creeping herbs, sometimes grown as ornamentals.

Uromyces pratiae Speg. Powdery dark-brown rust pustules on leaves and stems of *P. longiflora* and *P. repens* in South America.

PREMNA. Shrubs.

Cronartium premnae Petch. Golden-yellow to brown rust pustules on leaves of *P. cordifolia* and *P. corymbosa* in Ceylon.

Mycosphaerella oculata Syd. Small generally circular, leaf spots on *P. odorata* in the Philippines.

Phyllachora premnae Syd. Black stromata on leaves of *P. cuminoiana* in the Philippines.

Puccinia premnae P. Henn. Powdery black rust pustules on leaves of *P. macrophylla* and *P. microphylla* in Japan.

Uredo philippinensis Syd. Leaf rust on *P. tomentosa* in the Philippines.

Uredo premnae Koord. Leaf rust on *P. cumingiana*, *P. odorata*, and *P. tomentosa* in Java and the Philippines.

PRENANTHES. Tall perennial herbs.

Puccinia altaica Syd. Black rust pustules on leaves and stems of *P. diversifolia* in central Asia.

Puccinia prenanthis (Pers.) Lindr. See Lactuca.

Puccinia prenanthis-purpureae (DC.) Lindr. and var. **himalensis** Barcl. Powdery yellow and brown rust pustules on leaves of *P. alba*, *P. brunoniana*, *P. purpurea*, and *P. tenuifolia* in Europe and India.

Ramularia prenanthis Jaap. Subcircular ochraceous or brown leaf spots, which become confluent, occupying entire leaf blades of *P. purpurea* in Austria and Switzerland.

PRESTONIA. Tall, climbing, pubescent or glabrous shrubs.

Helminthosporium prestoniae P. Henn. Circular to confluent dark-brown leaf spots on *Prestonia* sp. in Peru.

PRIMULA. PRIMROSE. Low herbaceous plants with attractive many-colored flowers. (Including *Auricula*.)

Cercospora primulae Fautr. Grayish-white leaf spots with yellow margins on *P. elatior* in France.

Cercosporella primulae Allesch. Subcircular ochraceous leaf spots on *P. acaulis* and *P. veris* (*P. officinalis*) in Russia and Germany.

Heterosporium auriculae Cke. Leaves of *P. auricula* in Great Britain are disfigured by smoky patches due to this fungus.

Mycosphaerella primulae (Auersw. and Heufl.) Schroet. On leaves of *P. minima* in Yugoslavia.

Ovularia primulana Karst. Yellowish patches on lower leaf surfaces of *P. acaulis*, *P. elatior*, *P. officinalis*, *P. veris*, and *Primula* sp. in Europe.

Peronospora oerteliana Kuehn. Downy mildew on brown spots on lower leaf surfaces of *P. acaulis*, *P. elatior*, and *P. officinalis* in Switzerland, Bohemia, Sweden, Denmark, and Germany.

Phyllosticta primulicola Desm. Circular white leaf spots with tawny margins on *P. acaulis*, *P. elatior*, *P. officinalis*, *P. vulgaris*, and *P. veris* in Europe.

Puccinia arctica Lagh. Golden and yellow-brown rust sori on leaves of *P. sibirica* in Norway, Lapland, and northern Asia.

Puccinia primulae (DC.) Duby. Brown rust sori on leaf spots on *P. acaulis*, *P. cartusoides*, *P. elatior*, *P. grandiflora*, *P. integrifolia*, *P. officinalis*, and *P. vulgaris* in Japan and Europe.

Ramularia primulae Thuem. Circular to angular pale-ochraceous leaf spots on *P. acaulis*, *P. auricula*, *P. elatior*, *P. japonica*, *P. macrocalyx*, *P. officinalis*, *P. sinensis*, and *P. suaveolens* in Australia, Siberia, and Europe.

Ramularia tirolensis Maire. Subcircular, then confluent, brown leaf spots on *P. imbricata* in Tyrol.

Septoria primulae Buch. Circular brown leaf spots on *P. veris* and *Primula* sp. in Great Britain and Italy.

Septoria primulicola Rostr. Numerous ashen circular leaf spots with dull-brown margins on *P. acaulis* and *P. grandiflora* in Denmark.

Urocystis primulicola Magn. Smut sori changing seed capsules into masses of black spores. On *P. farinosa* and *P. veris* in Great Britain, Italy, Silesia, and Germany.

Uromyces aplosporus Hazsl. Dark-brown rust sori on leaves of *P. minima* in Italy, Austria, Hungary, and Germany.

Uromyces ovirensis Jaap. Leaf rust on *P. wulfeniana* in Austria.

PRIMULA—Continued

Uromyces primulae Fckl. Yellow and brown rust pustules on leaves of *P. auricula*, *P. balbisii*, *P. hirsuta*, *P. latifolia*, *P. minima*, *P. pedemontana*, *P. siberica*, and *P. villosa* in Italy, Switzerland, Austria, and Germany.

Uromyces primulae-integrifoliae (DC.) Niessl. Leaf rust on *P. deorum*, *P. integrifolia*, *P. minima*, *P. muretiana*, and *P. viscosa* in Bulgaria, Switzerland, Denmark, and Austria.

PROSOPIS. MESQUITE. Hawaiian algarroba. Leguminous trees and shrubs used for shade and forage.

Ascochyta prosopidicola Speg. Large leaf spots on *Prosopis* sp. in Argentina.

Phyllosticta prosopidicola Speg. Definite white leaf spots with purple borders on *P. alba* in Argentina.

Phyllosticta prosopidis P. Henn. Oblong white leaf spots with brownish margins on *P. ruscifolia* in Argentina.

Uncinula prosopidis Speg. Powdery mildew on leaves of *P. campestris* in Argentina.

Uredo prosopidis Jacz. Powdery brown rust pustules on leaves of *P. stephaniana* in Transcaucasia.

PROSTANTHERA. Shrubs, commonly strongly scented.

Phyllosticta prostantherae Cke. Brown leaf spots on *P. lasianthos* in Australia.

PROTEA. Tender shrubs, small trees or acaulescent perennial herbs.

Leptosphaeria protearum Syd. Subcircular, then irregular, sordid-white leaf spots on *P. madiensis* and *P. melaleuca* in Uganda and the Union of South Africa.

Oligostroma maculiformis (Wint.) Doidge. Black stromata on leaves of *P. abyssinica*, *P. flanagani*, *P. grandiflora*, and *P. neriifolia* in the Union of South Africa.

Oligostroma proteae Syd. On *P. flanagani* in the Union of South Africa.

Phaeosphaerella senniana Sacc. On *P. abyssinica*, *P. acaulis*, and *P. melaleuca* in the Union of South Africa and Abyssinia.

Phyllachora proteae Wakef. Tar spot on leaves of *P. mellifera* in the Union of South Africa.

Pseudomonas proteamaculans Paine and Stans. This bacterium produces numerous dome-shaped blisters, 1 to 3 mm. in diameter, on upper leaf surfaces of *P. cynaroides* in Great Britain. On young leaves the areas are larger, red to reddish brown with vermilion borders and depressed.

PRUNELLA. See Brunella.

PRUNUS. PLUM. CHERRY. APRICOT. (Including *Amygdalus*, PEACH, ALMOND, and NECTARINE). Fruit and nut trees.

Ascochyta chlorospora Speg. A shot-hole disease of leaves and fruit spot of *P. armeniaca*, (*Amygdalus communis*) *P. cerasus*, *P. divaricata*, *P. domestica*, and *P.* (*Amygdalus*) *persica* in Russia and Australia.

Ascochyta crystallina McAlp. Leaf spot on *P. amygdalus* in Australia.

Ascochyta ovalispora McAlp. On leaves and twigs of *P. cerasus* and *P. domestica* in Australia.

Ascochyta pruni Kab. and Bub. Circular, often indefinite, brown, then ashen-gray, leaf spots on *P. padus* in Bohemia.

Ascospora padi Grev. Defoliates *P. cerasus* in Europe.

Auerswaldiella puccinioides (Speg.) Theiss. and Syd. Dull-black stromata on leaves of *P. argentinensis* and *P. sphaerocarpa* in Central and South America.

Bacillus spongiosus Aderh. and Ruhl. Large cankers with heavy gum exudate on trunks of *P. cerasus* in Germany. This is apparently one of the gumming diseases of *Prunus* spp., the exact causes of which have for the most part not been worked out.

Bacterium sp. (Blossom-blight.) See Pyrus.

Caeoma makinoi Kus. A rust attacking the buds of *P. domestica*, *P. grayana*, *P. mume*, and *P. pseudocerasus* in Japan, causing hypertrophy and distortion of the young shoots as they develop.

Camarosporium prunifolium McAlp. Elongate narrow gray leaf spots with raised margins on *P. armeniaca* in Australia.

Cercospora amygdali Ali Riza. Subcircular, often confluent, gray spots on leaves of *P. amygdalus* in Turkey.

Cercospora guliana Sacc. Subcircular yellow leaf spots on *P. amygdalus* in Malta.

Clasterosporium persicum (Sacc.) Tsuji (*Cercosporella persicum* Sacc.) On leaves of *P. persica* in Japan and Italy.

Coniothecium albo-cinctum Preuss. Light gray patches on shoots of *P. domestica*, *P. persica* and *Malus* in Australia and Germany.

Coniothyrium pruni McAlp. Circular to irregular dirty-gray spots with raised dark-red margins on leaves and fruit of *P. armeniaca* and *P. domestica* in Australia.

Corticium salmonicolor B. and Br. See Citrus.

Cucurbitaria pruni-mahaleb Allesch. Attacks and kills buds and small twigs, a witches'-broom effect resulting. On *P. mahaleb* in Europe. Reported from New York.

Cylindrosporium tuberculinum Allesch. Attacks green fruit of *P. avium* and *P. padus* in Germany.

Dermatella prunastri Pers. Attacks and destroys terminal twigs of *P. domestica* in Great Britain.

Diaporthe perniciosa Marchal. This fungus attacks and destroys trees of all ages, but more particularly the young ones. Slightly sunken, reddish, elongate cankers appear, increasing rapidly in size and bringing about wilting and browning of the leaves which fall prematurely. Under some circumstances there is also a rot of the fruit. The hosts are *P. armeniaca*, *P. persica*, *P. cerasus*, *P. domestica*, *Malus* (apple, and *Pyrus* (pear) in Belgium, France, and Great Britain.

Didymaria prunicola Car. Brown leaf spots on *P. domestica* in Italy, causing premature leaf fall.

Dothiorella vinosa Marchal. Forms cankers on trunks and branches, spots on leaves, and rot of fruit of *Malus*, *Prunus domestica*, *Pyrus*, and *Ribes* in Belgium.

Exoascus andinus (Palm.) Sacc. and Trott. Indefinite reddish, often swollen, areas on leaves of *P. salicifolia* in Ecuador.

Exoascus rostrupianus Sadeb. Forms "fruit pockets" on *P. spinosa* in Europe.

Fusarium gemmiperda Aderh. Attacks and destroys buds of *P. cerasus* in Germany.

Fusicladium amygdali Duc. Small circular to angular brown leaf spots which enlarge to include the entire leaf blade, defoliation resulting. Young fruit and blossoms drop prematurely due to the weakening of the twigs. On the twigs dark-green, then brown, rough spots occur on shaded surfaces. On *P. amygdalus* in Italy and France.

Fusicladium cerasi Sacc. (*Venturia cerasi* Aderh.) Olive-black minute velvet blotches on fruit of *P. cerasus* in Europe. Diseased fruits mummify. Leaves and twigs are rarely attacked. Probably not distinct from *Cladosporium carpophilum*. Reported from Ohio and New Mexico.

Fusicladium pruni Duc. Gray or brown leaf spots on *P. domestica* in France.

Fusicoccum amygdali Delacr. Causes die-back of *P. amygdalus* in France.

Gloeosporium armeniacum Speg. Anthracnose on *P. armeniaca* in Argentina.

Gloeosporium cerasi Lind. Anthracnose on *P. avium* in Japan.

Glomerella mume (Hori.) Hemmi. Anthracnose on *P. mume* in Japan.

Gnomonia circumscissa McAlp. Circular ochraceous to gray leaf spots on *P. amygdalus*, *P. armeniaca*, *P. cerasus*, *P. domestica*, and *P. persica* in Australia. Possibly not distinct from the following species.

PRUNUS—Continued.

Gnomonia erythrostoma (Pers.) Auersw. Small yellow leaf spots which become brown and much enlarged, causing defoliation in part. The fruit withers or ripens unevenly, with poor color and flavor. On *P. cerasus* in Europe and New Zealand.

Graphium ulmi Schwartz. See Ulmus.

Haplosporella pruni McAlp. Causes large warted swellings on branches of *P. armeniaca* and *P. domestica* in Australia.

Helicobasidium mompa Tan. See Morus.

Helicobasidium tanakae Miy. See Morus.

Kellermannia pruni McAlp. On leaves of *P. armeniaca* and *P. persica* in Australia.

Laestadia circumscissa Sacc. Subcircular to oblong red to brown leaf spots on *P. spinosa* in Italy. One of the shot-hole diseases.

Microstoma tonellianum Ferr. Irregular white leaf spots on *P. domestica* in Italy.

Mycosphaerella cerasella Aderh. (*Cercospora cerasella* Sacc.) Brown shot-hole disease on *P. avium*, *P. cerasus*, *P. itosakura*, and *P. yamasakura* in Japan, Russia, Bulgaria, Yugoslavia, and Italy.

Myxosporium pruni-mahaleb Morellon. Attacks and destroys buds and small twigs of *P. mahaleb* in Europe, witches'-brooms developing ultimately.

Naemospora crocea (Bon.) Sacc. Two-year-old shoots are attacked, the young leaves wilting, turning brown and dying about blossom time. The flowers also turn brown and the shoots themselves shrivel and die. On *P. persica* in Great Britain.

Ovularia cerasi McAlp. Scabby patches on fruit of *P. cerasus* in Australia.

Ovularia circumscissa Sorok. Subcircular reddish leaf spots on *Prunus* sp. in the Caucasus.

Phoma persicae Sacc. Grayish areas on twigs of *P. persica* in Australia, apparently causing die-back.

Phyllohendersonia foliorum (Fckl.) Tass. On leaves of *P. domestica* in Italy, France, and Germany.

Phyllosticta albomaculans Kab. and Bub. Irregular leaf spots, white above, yellow-brown beneath, on *P. padus* in Bohemia.

Phyllosticta armenicula Farneti. Irregular spots on fruit of *P. armeniaca* in Italy.

Phyllosticta chlorospora McAlp. Elongated irregular leaf spots dirty-white above, pale red-brown beneath, on *P. domestica* in Australia.

Phyllosticta destruens Desm. See Celtis.

Phyllosticta macrospora McAlp. Irregular gray leaf spots with reddish margins, the centers falling out, on *P. armeniaca*, *P. divaricata*, and *P. domestica* in Australia.

Phyllosticta mahaleb Thuem. Circular ashen leaf spots on *P. mahaleb* in Italy and Portugal.

Phyllosticta matthiolana (Sacc. and Matt.) McAlp. Circular to elliptical or irregular brown leaf spots on *P. amygdalus*, *P. armeniaca*, *P. cerasus*, *P. communis*, *P. domestica*, *P. lauro cerasus*, and *P. persica* in Italy and Australia.

Phyllosticta minutissima Kab. and Bub. Circular to irregular, then confluent, pale ashen-brown leaf spots on *P. spinosa* in Bohemia.

Phyllosticta padi P. Brun. Brown or ochraceous subcircular to irregular spots on leaves of *P. padus* in Italy and France.

Phyllosticta persicophila Trav. and Migliardi. Marginal irregular ochraceous leaf spots with white centers on *P. persica* in Italy.

Phyllosticta pruni-avium Allesch. Yellow-brown leaf spots on *P. avium* in Germany.

Phyllosticta pruni-domesticae Vogl. Gray leaf spots, becoming white and somewhat swollen, on *P. domestica* in Italy.

Phyllosticta serebrianikowii Bub. Circular to elliptical gray, more or less concentrically zoned, leaf spots on *P. padus* in Russia.

Phyllostictiella pruni-spinosae (Allesch.) Tass. Ashen leaf spots on *P. spinosa* in Italy and Germany.

Phytophthora syringae Kleb. See Syringa.

Polystigma ochraceum (Wahlenb.) DC. Stromata on subangular leaf spots on *P. cerasus*, *P. amygdalus*, *P. padus*, and *Malus* sp. in Japan, India, and Europe.

Puccinia cerasi (Bereng.) Cast. Golden-yellow to brown rust pustules on leaves of *P. avium*, *P. cerasus*, *P. domestica*, *P. persica*, and *P. spinosa* in Europe.

Puccinia radiata Shirai. Rust pustules on leaves of *P. pseudo-cerasus* in Japan.

Ramularia cerasorum Marchal. On leaves of *P. cerasus* in Belgium.

Ramularia lata Sacc. White leaf spots on *P. laurocerasus* in France. A doubtful species.

Rhodosepteria ussuriensis Naoum. Destroys leaves and fruits of *Prunus* sp. in Russia.

Sclerotinia kusanoi P. Henn. Ashen-white areas on leaves of *P. pseudo-cerasus* in Japan.

Sclerotinia laxa Aderh. and Ruhl. Rot and mummification of fruit of *P. armeniaca* and *P. communis* in Australia, Russia, France, Hungary, and Germany.

Septobasidium acaciae Saw. See Acacia.

Septoria amygdali McAlp. On leaves of *P. amygdalus* and *Prunus* sp. in Australia and Russia.

Septoria anomala Sacc. Marginal leaf spots on *P. spinosa* in France.

Septoria cerasi Pass. Dark sanguineous leaf spots on *P. avium* and *P. cerasus* in France.

Septoria disseminata Desm. Leaf spot on *P. laurocerasus* and *P. lusitanica* in France.

Septoria effusa (Lib.) Desm. On leaves of *P. amygdalus* and *P. cerasus* in France, Italy, Austria, and Australia.

Septoria lauro-cerasi Desm. and Grog. Small brown leaf spots on *P. laurocerasus* in France.

Septoria lauro-cerasina Pass. On leaves of *P. laurocerasus* in Italy.

Septoria myrobalanae Brun. Circular to oblong brown leaf spots on *P. cerasifera* (*P. myrobalana*), in France.

Septoria pruni-mahaleb Therry. Small circular, then confluent, brownish-red leaf spots on *P. mahaleb* in France.

Septoria staganosporioides Mass. On leaves of *P. laurocerasus* in Italy.

Sporotrichum persicae Pöll. White incrustations or patches on fruit of *P. persica* in Italy. The fungus in itself does not cause a rot but lowers the market value of the fruit.

Stereum purpureum Pers. The silver-leaf disease is considered a serious disease of *P. armeniaca*, *P. cerasus*, *P. communis*, *P. domestica*, *P. japonica*, *P. lusitanicus*, *P. persica*, *P. spinosa*, *P. serotina*, *Malus*, and *Pyrus* in Europe, New Zealand, Canada, and the Union of South Africa. It has also been reported on *Aesculus* sp., *Pernettya mucronata*, *Crataegus* spp., *Philadelphus* sp., *Ribes* sp., and *Rosa sericea*. The fungus considered as the cause of the disease is widespread throughout the United States, but apparently never occurs, or certainly only rarely, in connection with the silver-leaf type of disease, except in Oregon and Washington.

Silver-leaf is characterized by a silvering of the foliage, which spreads gradually until the entire tree is affected. The limbs bearing these silvered leaves die back and ultimately the tree itself dies. The fungus does not attack the leaves directly, but causes a brown heart rot of roots and trunk and is supposed to secrete some deleterious substance which causes the external signs of the disease.

Stigmina briosiana Far. On *P. armeniaca* in Europe.

PRUNUS—Continued.

Taphrina mexicana Syd. Small witches'-brooms are formed on *P. microphylla* in Mexico by this fungus.

Taphrina minor Sadeb. Reddish spots on leaves and twigs of *P. avium*, *P. cerasus*, and *P. chamaecerasus* in New Zealand, Denmark, Holland, Russia, Great Britain, and Germany. Diseased twigs become malformed.

Taphrina mume Nish. On *P. armeniaca*, *P. domestica*, and *P. mume* in Japan.

Taphrina pseudo-cerasi Shir. Causes a witches'-broom effect on *P. subhirtella* (*P. miqueliana*) and *P. pseudo-cerasus* in Japan.

Taphrina trunicola S. Kus. This fungus attacks the buds of *P. incisa* and *P. pseudocerasus* in Japan. It causes hypertrophy and distortion of twigs and petioles. Leaf blades are commonly not changed, but the flowers become succulent pink masses of abnormal tissue.

Thekopsora areolata (Fr.) P. Magn. Dark-brown crustlike rust sori on leaves of *P. padus*, *P. serotina*, and *P. virginiana* in Japan and Europe. The aecial stage forms red-brown to dark-brown pustules on cone scales of *Picea ajanensis*, *P. excelsa*, *P. glehni*, *P. hondoensis*, and *P. obovata*.

Thekospora pseudocerasi Hirotsuka. Leaf rust on *P. pseudocerasus* in Japan.

Uncinula prunastri (DC.) Sacc. Powdery mildew on leaves of *P. dasyphylla*, *P. domestica*, *P. insititia*, *P. pumila*, *P. spinosa*, and *Crataegus* sp. in Europe and Transcaucasia.

Uredo pruni-maximowiczii P. Henn. Rust sori in young branches and petioles of *P. maximowiczii* in Japan.

Uredo persicae Speg. Leaf rust on *P. persica* in Brazil.

Valsa japonica Miy. and Henn. A wound parasite of trunks and branches of *P. cerasus*, *P. koidzumii*, *P. kuriliensis*, *P. mume*, *P. persica*, *P. sachalinensus*, *P. serrulata*, and *P. yedoensis* in Japan.

Verticillium sp. A wilt disease of *P. cerasus* is reported as serious in Holland, but details are lacking.

PSEUDOTSUGA. DOUGLAS FIR. Timber and ornamental coniferous trees.

Lophodermium abietis Rostr. See Picea.

Myxosporium abietinum Rostr. See Larix.

Oospora abietum Oudem. See Abies.

Phomopsis pseudotsugae Wils. This a new and apparently threatening disease of *P. taxifolia* in Great Britain and Holland. It also attacks *Larix kaempferi* (*L. leptolepsis*), *L. decidua*, *Abies grandis*, *A. pectinata*, and *Tsuga heterophylla*.

Cankers appear on the branches or stems, causing constrictions and the death of the portion of branch or stem beyond the canker. The cankers may occur along one side only, in which case death of the branch is delayed. The minute black fruiting bodies form on the cankers and enlarged gum pockets appear in the swollen portions of the limbs or trunk just above the diseased areas. Diseased trees have an unthrifty appearance, due to the yellowing of the foliage of diseased branches, and younger trees, particularly nursery stock, are killed.

Phomopsis pithya (Sacc.) Grove. This fungus, related to the preceding one, occurs on *Pinus*, *Pseudotsuga*, and other conifers in Europe but is generally considered as saprophytic only.

PSIDIUM. GUAVA. Tropical and subtropical fruit trees and shrubs.

Althaloderma clavatisporum Syd. On leaves of *P. guajava* in Siam.

Catacauma goyazense (P. Henn.) Theiss. and Syd. Tar spot on leaves of *P. guajava* in Paraguay and Brazil.

Catacauma subcircinans (Speg.) Theiss. and Syd. Circular black shiny stromata on leaves of *P. cattleyanum* in Brazil and Argentina.

Cercospora psidii Rangel. On leaves of *P. araca* in Brazil.

Linhartia höhnelii Rehm. Small circular leaf spots on *Psidium* sp. in Brazil.

Meliola psidii Wint. Superficial black circular to irregular fungus patches on leaves of *P. guajava* and *P. pomiferum* in Central and South America and the West Indies.

Phyllachora cayennensis (DC.) Theiss. and Syd. See Ficus.

Phyllachora tropicalis Speg. Subcircular black stromata on leaves of *P. thea* in Brazil and Argentina.

Phyllosticta psidiella Tassi. Small irregular dirty-white leaf spots on *P. montanum* in Italy.

Phyllosticta psidii Tassi. Dull-brown leaf spots on *P. araca* in Italy.

Puccinia psidii Wint. Yellow to brown rust pustules on dull-brown or brown-purple leaf spots on *P. araca*, *P. guajava*, *P. pomiferum*, and *Eugenia* (*Caryophyllus*) *jambos* in Porto Rico, Cuba, Ecuador, and Brazil.

PSOPHOCARPUS. BOTOR Ag. Tall, twining herbs with large tuberous roots.

Woroninella psophocarpi Racib. Forms numerous orange galls on leaves, stems, and fruit of *P. longipedunculatus*, *P. palustris*, and *P. tetragonolobus* in Java, India, the Philippines, and west tropical Africa.

PSORALEA. SCURF-PEA. Herbs and shrubs used somewhat in border plantings.

Erysiphe taurica Lév. See Althaea.

Phlyctaena psoraleae (Cast.) Karst. and Har. On stems of *Psoralea* sp. in France.

Woroninella aequatoriensis Syd. On leaves of *P. mutisi* in Ecuador.

PSYCHOTRIA. Tropical shrubs and small trees.

Aecidium iquitosense P. Henn. Yellow rust sori deforming leaves and stems of *Psychotria* sp. in Peru and Brazil.

Aecidium micranthum Syd. Leaf rust on *P. elongata* in Ceylon.

Aecidium psychotriae P. Henn. Leaf rust on *Psychotria* sp. in Brazil.

Inocyclus psychotriae Syd. On leaves of *P. luzonensis* in the Philippines.

Phyllachora psychotriae Rehm. Scattered black stromata on circular yellowish leaf spots on *Psychotria* sp. in Brazil.

Phyllosticta psychotriae P. Henn. On leaves of *Psychotria* sp. in Brazil.

Puccinia fallaciosa Arth. Brown leaf rust on leaves of *Palicourea crocea*, *P. riparia*, and *Psychotria patens* in Porto Rico.

Puccinia psychotriae P. Henn. Brown rust pustules on leaves of *Psychotria* sp. in Brazil.

Uredo holstii P. Henn. Leaf rust on *Psychotria* sp. in tropical Africa.

Uredo mkusiensis P. Henn. Leaf rust on *Psychotria* sp. in Uganda and Tanganyika.

Uredo psychotriae-volkensii P. Henn. Yellow rust pustules on circular, then confluent, dull-brown leaf spots on *P. volkensii* in tropical Africa.

Uredo psychotriicola P. Henn. Leaf rust on *Psychotria* sp. in Brazil.

Uromyces psychotriae P. Henn. Leaf rust on *Psychotria* sp. in Brazil.

PTELEA. HOP TREE. Deciduous shrubs and small trees with handsome foliage and attractive green fruit.

Ascochyta pteleae Kab. and Bub. Circular leather-brown, often zoned, leaf spots with narrow dark-brown margins on *P. trifoliata* in Bohemia.

Phyllosticta pteleae Höll. Large irregular, then confluent, brown leaf spots on *P. trifoliata* in Hungary.

PTERIS. BRAKE. A large genus of ferns, many forms cultivated.
Aphelenchus olesistus Ritz. Bos. See Begonia.
Ascochyta pteridis Bres. On leaves of *Pteridium aquilinum* (*P. aquilinum*) in Germany.
Dothidella pteridophila Speg. Black stromata covering leaves of *Pteris* sp. in Brazil.
Hyalopsora filicum Diet. See Asplenium.
Mycosphaerella prominula (Speg.) Lind. On leaves of *P. aquilinum* in Europe.
Phyllachora rhopographoides Wint. Doubtful species on *P. aquilinum* in Brazil.
Rhopographus malmei Starb. Linear black stromata on leaves of *Pteris* sp. in Brazil.
Rhytisma piceum Berk. Black opaque stromata on leaves of *Pteris* sp. in India.
Septoria aquilina Pass. Brown spots on leaves of *P. aquilina* in Italy. Reported from Wisconsin.
Septoria pteridicola Kab. and Bub. Pale-brown or dull-yellow irregular, then confluent, areas on leaves of *P. aquilina* in Italy.
Taphrina laurencia Giesenh. Causes much-branched leafy outgrowths on *P. quadriaurita* in Ceylon and India.
Taphrina rhomboidalis Syd. and Butl. Yellow to brown areas on leaves of *P. quadriaurita* in India.
Taphrina tonduziana P. Henn. Circular to angular spots on leaves of *P. aculeata* in Costa Rica.

PTEROCARPUS. Leguminous trees or woody climbers.
Aldona stella-nigra Rac. On leaves of *P. indicus* in Java and the Philippines.
Catacauma pterocarpi Syd. Small irregular black stromata on white leaf spots on *P. angolensis*, *P. indicus*, and *P. sazatilis* in Java, the Philippines, and the Union of South Africa.
Helminthosporium obovatum Mass. On leaves of *P. indicus* in Malaya.
Placostroma pterocarpi (Mass.) Theiss. and Syd. Black stromata on yellow-green leaf spots on *P. indicus* in Malaya and the Philippines.
Pseudothis pterocarpi Syd. On leaves of *P. indicus* in the Philippines.
Uncinula inerassata Salm. Powdery mildew on leaves of *P. mellifer us* in central Africa.

PTEROCARYA. WING NUT. Ornamental trees grown for their handsome pinnate foliage.
Phyllosticta pterocaryae Thuem. Irregular, often marginal dull-yellow to gray leaf spots on *P. caucasica* in Portugal.

PTYCHOSPERMA. See Palmae.

PUERARIA. KUDZU BEAN. Twining herbs or shrubs.
Cercospora puerariae Syd. Olive-brown leaf spots on *P. phaseoloides* in the Philippines.
Synchytrium puerariae Miy. (*Woroninella puerariae* [Henn.] Syd.). Small galls on leaves and stems of *P. hirsuta*, *P. phaseoloides*, and *P. sericea* in Japan, China, Java, India, New Guinea, and the Philippines.

PULMONARIA. LUNGWORT. Perennial herbs with creeping root-stocks, grown in gardens.
Entyloma serotinum Schroet. See Borago.
Phyllosticta pulmonariae (Fckl.) Sacc. Small, dull-brown, leaf spots on *Pulmonaria* sp. in Switzerland.
Puccinia bromina Erikss. See Bromus.
Ramularia cylindroides Sacc. Dull-yellow leaf spots on *P. mollissima*, *P. officinalis*, *P. styriaca*, *P. tuberosa* and *Verbascum* sp. in Europe.
Septoria pulmonariae Sacc. Subcircular dark-brown leaf spots on *P. officinalis* and *Pulmonaria* sp. in Russia and Italy.

PUNICA. POMEGRANATE. Small trees with edible fruit.
Aposphaeria punicina Sacc. Found in connection with die-back of twigs of *P. granatum* in southern Europe.
Cercospora punicae P. Henn. Circular dark-fuscous leaf spots on *P. granatum* in China and Japan.
Dothiorella sanninii Ciferri. Surface of fruit of *P. granatum* in Italy covered with small black patches which disfigure and lower the commercial value.
Megalonectria caespitosa Speg. Forms cankers on trunk and branches of *P. granatum* in Brazil and Argentina.
Phyllosticta granati Rangel. Circular to angular brown leaf spots on *P. granatum* in Brazil.
Phyllosticta punica Sacc. and Speg. Small subcircular white leaf spots with red margins on *P. granatum* in Italy.

PYCNOSTACHYS. Erect perennial herbs.
Uredo pycnostachydis Kalchbr. Leaf rust on *P. dawei* and *P. reticulata* in Uganda.

PYRETHRUM. See also Chrysanthemum.
Puccinia balsamitae (Strauss.) Rabh. Leaf rust on *P.* (*Chrysanthemum*) *balsamita*, *P. tanacetifolium*, and *Tanacetum* sp. in Europe.
Puccinia proximella Syd. Leaf rust on *P. millefoliatum* in Russia.
Septoria pyrethri Bres. and Krieg. Irregular buff leaf spots on *P. macrophyllum* and *P.* (*Chrysanthemum*) *parthenium* in Russia and Germany.

PYROLA. Shinleaf. Low, smooth, perennial herbs with subterranean shoots.
Actinonema pirolae Allesch. Large irregular black leaf spots on *P. secunda* in Germany.
Phyllosticta pyrolae (Ehrbg.) Allesch. Circular, often confluent, purple-brown leaf spots on *P. rotundifolia* in Germany.
Sclerotinia pyrolae Grosse. Forms black sclerotia in pods of *P. chlorantha*, *P. media*, *P. minor*, *P. rotundifolia* and *P. uniflora* in Russia.

PYRUS. PEAR. Trees and shrubs cultivated for fruit and ornament.
Ascochyta pirina Pegl. Irregular brown spots on fruit and leaves of *P. communis* in Russia, Malta, and Italy.
Bacillus sp. (Blossom Blight.) This bacterium causes a blighting of flowers and sometimes a die-back of twigs of *Pyrus*, *Malus*, and *Prunus* spp. in England. The sepals turn gray and blacken, the discoloration involves the calyx and flower stalk, and the entire blossom turns black, sometimes falling.
Bacterium nectarophilum Doidge. Causes a blackening of flowers, peduncles, and young fruit of *Pyrus* in the Union of South Africa. Distinct from fire blight.
Bacterium pyri Brzez. This bacterium is reported as the cause of a trunk and branch canker of *Pyrus* (pear) in central Europe.
Cercospora piricola K. Saw. Angular, then coalescent, brown and finally ashen leaf spots on *P. communis* and *P. sinensis* in Japan.
Cercospora porrigo Speg. Leaf spot on *P. communis* in Argentina.
Colletotrichum piri Noack and f. **tirolense** Bub. Anthracnose on *Pyrus* and *Malus* in Brazil and Austria.
Coniothecium chromatosporum Cda. See Malus.
Coryneum folliculum Fckl. See Crataegus.
Diaporthe perniciosa Marchal. See Prunus.
Dothiorella vinosa Marchal. See Prunus.
Entomosporium mespili (DC.) Sacc. See Cotoneaster.

PYRUS—Continued.

Exoascus bullatus (B. and Br.) Fckl. Small, then confluent, reddish blisterlike swellings on leaves of *P. amygdaliformis*, *P. communis*, *P. japonica*, *P. sinensis*, *P. ussuriensis*, and *Cydonia japonica* in Australia, Chile, and Europe.

Gymnosporangium cunninghamianum Barcl. See Cupressus.

Gymnosporangium koreaense (P. Henn.) Jacks. See Juniperus.

Gymnosporangium mespili (DC.) Kern. See Juniperus.

Gymnosporangium sabinae (Dicks.) Wint. See Juniperus.

Gymnosporangium yamadae Miy. See Juniperus.

Hadrotrichum piri Montem. Small gray circular, sometimes confluent, leaf spots on *Pyrus* sp. in Italy.

Helicobasidium mompa. See Morus.

Helicobasidium tanakae Miy. See Morus.

Labrella piricola Bres. and Sacc. On leaves of *P. communis* and *Malus* in Germany.

Laestadia parmensis Pass. On leaves of *P. communis* in Italy.

Ochropsora sorbi Diet. See Sorbus.

Oospora piricola Nob. Gray to white patches on leaves and branches of *Pyrus* in France.

Phacidiella discolor (Mont. and Sacc.) A. Poteb. See Malus.

Phyllosticta briardi Sacc. See Malus.

Phyllosticta mali Prill. and Delacr. See Malus.

Phyllosticta piricola Sacc. and Speg. On leaves of *Pyrus* in Europe.

Phyllosticta tirolensis Bub. Small subcircular to irregular gray leaf spots on *P. communis* in Austria.

Phytophthora syringae Kleb. See Syringa.

Plectodiscella piri Wor. Circular to oval grayish-white leaf spots on *P. communis* and *Malus* sp. in southern Russia.

Ramularia magnusiana Sacc. On leaves of *Pyrus* in Belgium.

Septoria nigerrima Fckl. On leaves of *P. communis* in Yugoslavia, France, and Italy. Reported from New York.

Septoria ralfsii B. and Br. Black irregular spots on fruit of *Pyrus* in Great Britain, with subsequent rot.

Stagonospora mali Delacr. On leaves of *Pyrus* and *Malus* in France.

Stereum purpureum Pers. See Prunus.

Taphrina piri S. Kus. Circular to irregular yellow-green leaf spots on which yellowish or white scurfs appear. These areas may spread over most of the leaf surface and cause distortion. On *P. miyabei* in Japan.

QUAMOCLIT. STAR GLORY. Annual or perennial twining vines.

Phyllosticta quamoclit Thuem. Dull-yellow to brown irregular leaf spots with gray margins on *Q. coccinea* in Portugal.

QUERCUS. OAK. Ornamental and timber trees.

Coccochorella quercicola (P. Henn.) v. Hoeh. Shiny black circular stromata on leaves of *Q. thalassica* in Japan.

Coccodiscus quercicola P. Henn. Black stromata on leaves of *Q. thalassica* in Japan.

Coccohora kusanoi (P. Henn.) v. Hoehn. Irregular black shiny stromata on leaves of *Q. glauca* in Japan

Coccoidea quercicola P. Henn. and Shir. Small black stromata on leaves of *Q. glabra* and *Q. glauca* in Japan.

Coryneum follicolum Fckl. See Crataegus.

Coryneum umbonatum Nees. Kills twigs and branches of *Q. castaneaefolia* in France.

Cystotheca wrightii B. and C. Superficial brown perithecia on leaves of *Q. acuta*, *Q. glauca*, *Q. myrsinaefolia*, and *Q. vibrayeana* in Japan.

Dermatea cinnamomea (Pers.) Rehm. Wound parasite on *Quercus* spp. in Europe.

Diaporthe taleola (Fr.) Sacc. On branches of *Quercus* spp. in Europe.

Exoascus kruckii Vuill. Causes a witches'-broom effect on *Q. ilex* in France and Italy.

Gloeosporium shiraianum Syd. Circular ochraceous to brown leaf spots with pale centers on *Q. glandulifera* in Japan.

Gloeosporium umbrinellum B. and Br. Small irregular brown leaf spots on *Q. robur*, *Q. sessiliflora*, and *Quercus* sp. in Russia, Switzerland, Great Britain, and Germany.

Gnomonia quercus-ilicis Berl. On leaves of *Quercus* spp. in Italy.

Guignardia contecta (Desm.) Lind. Subcircular to irregular pale-rufous leaf spots with brown margins on *Q. coccifera* in France.

Guignardia diffusa (Crié) Sacc. and Trott. See Castanea.

Guignardia punctoidea (Cke.) Schroet. On branches of *Quercus* sp. in northern Europe.

Hadronema orbiculare Syd. Small circular, velvety fungus patches on leaves of *Q. glauca* and *Q. liuyuensis* in Japan and the Philippines.

Helicobasidium mompa Tan. See Morus.

Heterosporium proteus Starb. Brown sunken leaf spots on *Quercus* sp. in Sweden.

Hydnum obrutans Burt. Causes heart rot of *Quercus* sp. in Java.

Japonia quercus v. Hoehn. On leaves of *Q. glauca* in Japan.

Laestadia cerris Pass. Pale-brown leaf spots on *Q. cerris* in Italy.

Laestadia cookeana (Auersw.) Sacc. On leaves of *Q. ilex* and *Q. robur* in Europe.

Lasioderma flavo-virens Dur. and Mont. On leaves of *Quercus* spp. in Spain and Algeria.

Macrophoma cylindrospora (Desm.) Berl. and Vogl. See Hedera.

Macrophoma fusispora Bub. Subcircular to elongate whitish leaf spots on *Q. conferta* in Hungary.

Macrophoma mexicana Sacc. On leaves of *Q. glauca* in Mexico.

Melogramma henriquetii Br. and Cav. On *Q. suber* in southern Europe.

Microporella quercus v. Hoeh. On leaves of *Q. glauca* in Japan.

Microstroma album (Desm.) Sacc. and var. **japonicum** P. Henn. On leaves of *Q. cerris*, *Q. glauca*, *Q. grosseserrata*, and *Q. sessiliflora* in Europe, Japan, Argentina, and the Union of South Africa.

Monochaetia pachyspora Bub. Subcircular to irregular pale grayish-yellow leaf spots on *Q. ilex* in Austria.

Myceloderma cuticularia Duc. Brown leaf spots on *Q. suber* in France.

Phoma cupulicola Oz. Frag. On *Quercus* sp. in Spain.

Phyllohendersonia foliorum (Fckl.) Tass. On leaves of *Q. ilex* and *Quercus* sp. in Italy, France, and Germany.

Phyllosticta associata Bub. On leaves of *Q. robur* (*Q. pedunculata*) in Austria.

Phyllosticta bresadoleana Bub. and Kab. Brown or yellow-gray leaf spots with narrow brown-purple margins on *Q. pubescens* in Austria.

Phyllosticta globulosa Thuem. Irregular gray-white leaf spots on *Q. robur* (*Q. pedunculata*) in Austria.

QUERCUS—Continued.

Phyllosticta hranicensis Petr. On leaves of *Q. robur* in Bohemia.

Phyllosticta ilicicola Pass. Circular brown, then ashen-gray, leaf spots on *Q. ilex* in France and Italy.

Phyllosticta ilicina Sacc. Pale-brown leaf spots on *Q. ilex* in Italy, Portugal, and Austria.

Phyllosticta iliciseda Sacc. Broad, irregular leaf spots with black borders on *Q. ilex* in Italy.

Phyllosticta macrocarpae Monte. Brown irregular leaf spots on *Q. macrocarpa* in Italy.

Phyllosticta phaeospora Scalia. On leaves of *Q. ilex* in Italy.

Phyllosticta quercicola Oud. On leaves of *Quercus* sp. in northern Europe.

Phyllosticta quercus-cocciferae Bub. Circular to irregular white leaf spots on *Q. coccifera* in Yugoslavia.

Phyllosticta roboris Oud. Small angular, often confluent, pale-brown leaf spots on *Q. robur* in Bohemia and Holland.

Phyllosticta shiraiana Syd. Circular ochraceous to white leaf spots on *Q. acuta* and *Q. glauca* in Japan.

Plowrightia noxia (Ruhl.) Sacc. See Castanea.

Rosellinia quercina Hartig. Attacks roots of young *Quercus* seedlings in nurseries in Germany. Infected plants show an unhealthy browning of the foliage, followed by withering of young shoots and ultimate death.

Sclerotinia candolleana (Lév.) Fckl. Leaves of *Quercus* and *Castanea* in Great Britain, France and Germany turn brown and fall prematurely due to this fungus.

Septoria dryophila Sacc. White leaf spots with narrow dark margins on *Q. ilex* in Italy.

Septoria dubia Sacc. and Syd. Small yellowish leaf spots with red margins on *Q. pedunculata* and *Q. robur* (*Q. pubescens*) in France, Russia, Yugoslavia, and Germany.

Septoria quercicola Sacc. White leaf spots on *Q. humilis*, *Q. pedunculata*, and *Q. sessiliflora* in France, Italy, and Portugal. Reported from Minnesota.

Septoria quercina Desm. Small circular white leaf spots on *Q. robur*, *Q. sessiliflora*, and *Quercus* sp. in Japan, Russia, France, Italy, Denmark, Austria, and Germany.

Septoria quercus Thuem. Subcircular ochraceous leaf spots on *Q. pedunculata* and *Q. sessiliflora* in Portugal.

Sphaerotheca kusanoi P. Henn. and Shir. Powdery mildew on leaves of *Q. glandulifera* in Japan.

Trabutia canzattiana Sacc. Reddish-brown circular, sometimes confluent, leaf spots on *Quercus* sp. in Mexico.

Typhulochaeta japonica Ito and Hara. On leaves of *Q. glandulifera* in Japan.

Uncinula septata Salm. Powdery mildew on leaves of *Q. glandulifera* in Japan.

Uredo quercus Brond. Small circular rust pustules on lower leaf surfaces of *Quercus* spp. in Europe.

Yoshinagaia quercus P. Henn. Black subcarbonaceous stromata on upper leaf surfaces of *Q. glauca* in Japan.

Yoshinagella japonica v. Hoeh. Irregular black stromata on upper leaf surfaces of *Q. glauca* in Japan.

RADICULA. HORSE-RADISH. WATER CRESS. (Including *Roripa* and *Armoracia*.)

Ascochyta armoraciae Fckl. Scattered pale-brown leaf spots on *Armoracia rusticana* (*R. armoracia*) in Europe.

Ascochyta rusticana Kab. and Bub. Ochraceous or brown leaf spots varying in size from 0.5 to 2 centimeters, on *R. armoracia* in Bohemia

Peronospora nasturtii aquatici Gäum. Downy mildew on leaves of *Sisymbrium nasturtium-aquaticum* (*R. nasturtium-aquaticum*) in Germany.

Phyllosticta armoraciae Cke. Circular to angular dirty-white leaf spots with narrow brown margins on *R. armoracia* in Great Britain.

Ramularia cochleariae Cke. See Barbarea.

Septoria armoraciae Sacc. Irregular ochraceous leaf spots on *R. armoracia* in Italy.

RANDIA. Erect or climbing tropical trees or shrubs.

Aecidium abscendens Arth. Yellow rust pustules on leaves of *R. aculeata* in Porto Rico and Costa Rica.

Aecidium pulverulentum Arth. Leaf rust on *Randia* sp. in Mexico.

Aecidium randiae P. Henn. Yellow rust pustules on dull-brown, swollen leaf spots on *Randia* sp. in Brazil.

Corticium salmonicolor B. and Br. See Citrus.

Endophyllum griffitsiae Rac. Yellow rust sori on circular leaf spots on *R. scandens*, *R. sinensis*, and *Pavetta indica* in Java and China.

Lembosia philippinensis Syd. On leaves of *Randia* sp. in the Philippines.

Pestalozzia pauciseta Sacc. Gray leaf spots on *R. reticulata* in the Philippines.

Taphrina randiae Rehm. Elliptical black, swollen leaf spots on *Randia* sp. in Brazil.

Trabutia randiae (Rehm.) Theiss. and Syd. and var. **aculeatae** Ferd. and Winge. Black stromata on leaves of *R. aculeata* and *R. pubescens* in Bolivia and the American Virgin Islands.

RANUNCULUS. (Including *Ficaria*.) BUTTERCUP. Crowfoot. Annual and perennial herbs.

Aphelenchus olesistus Ritz. Bos. See Begonia.

Ascochyta carinthiaca Jaap. On leaves of *R. thora* in Austria.

Cercosporella ranunculi Jaap. Circular to elongate brown leaf spots on *R. muricatus* in Dalmatia.

Cylindrosporium ficariae Berk. On leaves of *R. ficaria* in France and Great Britain.

Cylindrosporium ranunculi Sacc. and f. **sclerati** P. Brun. On leaves of *R. acris*, *R. bulbosus*, and *R. sceleratus* in France and Italy.

Entyloma ameghinoi Speg. Leaf smut on *R. cymbalaria* in Patagonia.

Fabraea litigiosa (Rob. and Desm.) Sacc. On leaves of *Ranunculus* spp. in Alaska, Europe, and north Africa.

Fusidium eburneum Schroet. Subcircular, often confluent, white leaf spots with yellow centers on *R. acris* and *R. repens* in Siberia and Austria.

Heterosporium ferox Bub. On leaves of *R. arvensis* in Bohemia.

Leptosphaeria thorae Jaap. On leaves of *R. thora* in Austria.

Ovularia decipiens Sacc. On leaves of *R. acris* in Russia, Dalmatia, and Italy. Reported from New York.

Peronospora alpicola Gäum. Downy mildew on leaves of *R. aconitifolius*, *R. pyrenaeus*, and *R. seguieri* in France, Switzerland, Austria, and Germany.

Peronospora ficariae (Nees.) Tul. As above on *R. ficaria* in Europe.

Peronospora gigantea Gäum. Downy mildew on leaves of *R. lingua* in Denmark and Russia.

Peronospora glacialis (Blytt.) Gäum. Downy mildew on leaves of *R. glacialis* in Switzerland and Norway.

Peronospora illyrica Gäum. As above, on *R. illyricus* in Russia.

Phyllosticta ficariae Maire. On leaves of *R. calthaefolius* in French north Africa.

Phyllosticta pygmaea Allesch. On leaves of *R. pygmaeus* in Greenland.

RANUNCULUS—Continued.
Phyllosticta ranunculi (Fckl.) Sacc. On leaves of *R. acris* in Germany.
Phyllosticta ranunculorum Sacc. and Speg. Dull-brown leaf spots on *R. repens* in Italy.
Physoderma vagans Schroet. Small tubercles on leaves and stems of *R. acris, R. flammula, R. repens, Oenanthe phellandrium, Potentilla anserina, Selinum lineare, Silaus* sp., and *Sium latifolium* in France and Germany.
Pseudopeziza ranunculi (Wallbr.) Fckl. Black circular fruiting bodies in dark-brown sunken leaf spots on *R. cassubicus, R. chaerophyllus, R. nemorosus,* and *R. polyanthemos* in Belgium, France, and Germany.
Puccinia andina Diet. and Neg. Leaf rust on *R. peduncularis* in South America.
Puccinia blyttiana Lagh. Brown rust pustules on leaf blades and petioles of *R. alpestris* and *R. auricomus* in Norway and Switzerland.
Puccinia gibberulosa Schroet. Powdery brown rust pustules on leaf blades and petioles of *R. lancipetalus* and *Ranunculus* sp. in France and Argentina.
Puccinia magnusiana Koern. See Phragmites.
Puccinia nubigena Speg. Rust on leaf blades and petioles of *Ranunculus* sp. in Argentina.
Puccinia ustalis Berk. Dark-brown rust pustules on *R. hirtellus, R. pulchellus,* and *R. songaricus* in Mongolia, Turkestan, and India.
Ramularia acris Lindr. Large irregular yellow-brown to gray-brown leaf spots on *R. acris* in Finland and Sweden.
Ramularia aequivoca (Ces.) Sacc. On leaves of *R. auricomus, R cassubicus, R. lanuginosus, R. polyanthemos, R. repens,* and *R. trachycarpus* in Europe. Reported from Wisconsin.
Ramularia lapponica Lindr. Irregular gray or dark-brown leaf spots on *R. lapponicus* in Finland.
Ramularia repentis Oud. Elliptical to irregular leaf spots on *R. repens* in Holland.
Ramularia sceleratа Cke. Elongate brown spots on lower leaves of *R. sceleratus* in Great Britain.
Ramularia serbica Ranoj. Irregular brown leaf spots on *R. montanus* in Yugoslavia.
Sclerotinia ficariae Rehm. On leaves of *R. ficaria* in Italy.
Septoria cymbalarina Thuem. On leaves of *R. cymbalana* in Siberia.
Septoria ficariae Desm. Ashen leaf spots on *R. ficaria* and *R. vernus* in Europe.
Septoria oreophila Sacc. Small white leaf spots on *R. aconitifolius* in Italy.
Septoria polaris Karst. White leaf spots on *R. flammula* and *R. parviflorus* in Great Britain and Scandinavia.
Septoria ranunculacearum Lév. Brown leaf spots on *R. acris, R. cymbalaria,* and *R. pusillus* in France, Italy, and Siberia.
Septoria ranunculi West. Circular greenish-yellow leaf spots on *R. sceleratus* in Belgium.
Synchytrium andinum Lagerh. Red-brown warty areas on leaves of *Ranunculus* sp. in Ecuador.
Uromyces dactylidis Otth. See Dactylis.
Uromyces festucae Syd. See Festuca.
Uromyces ficariae (Schum.) Lév. Leaf rust on *R. ficaria, R. grandiflora,* and *R. vernus* in Europe.
Uromyces fischerianus E. Mayor. Yellow-brown rust pustules on leaf blades and petioles of *R. glacialis* in Switzerland.
Uromyces poae Rabh. See Poa.
Uromyces ranunculi-distichophylli Semad. Leaf rust on *R. parnassifolius* in Switzerland.
Uromyces ranunculi-festucae Jaap. See Festuca.
RAPHANUS. Radish. Vegetable and forage plants.
Moniliopsis aderholdi Ruhl. See Solanum.
Pseudomonas destructans Potter. See Brassica.
Puccinia isiacae (Thuem.) Wint. See Arundo.
RAUWOLFIA. Ornamental trees or shrubs.
Accidium rauwolfiae P. Henn. Leaf rust on *Rauwolfia* sp. in the Congo.
RAVENALA. Traveler's-tree. Large *Musa*-like plants.
Catacauma ravenalae (Pat. and Har.) Theiss. and Syd. Black stromata on leaves of *R. madagascariensis* in Madagascar.
Zukalia stuhlmanniana P. Henn. See Palmae.
RENANTHERA. Tall climbing epiphytic orchids. See Orchidaceae.
RENEALMIA. Perennial aromatic herbs.
Catacauma renealmiae (Rehm.) Theiss. and Syd. Circular black stromata on brown leaf spots on *Renealmia* sp. in Brazil.
Endodothella renealmiae (Rehm.) Theiss. and Syd. Circular to irregular black stromata on leaves of *Renealmia* sp. in Brazil.
Septoria renealmiae Tassi. Large brown leaf spots on *R. cinnamomea* in Italy.
RESEDA. Mignonette. Garden annuals.
Peronospora crispula Fckl. Downy mildew on leaves of *R. lutea* and *R. luteola* in France, Denmark, Switzerland, and Germany.
Phyllosticta resedae Petch. On leaves of *R. odorata* in Ceylon.
RETINOSPORA. See Chamaecyparis.
RHAMNUS. Buckthorn. Woody plants grown for their foliage and some species for their attractive fruit and medicinal bark.
Ascochyta frangulina Kab. and Bub. On leaves of *R. cathartica* and *R. frangula* in Russia and Bohemia.
Endophyllum elegans (Diet.) Pole-Evans. Leaf rust on *R. prinoides* in the Union of South Africa.
Mycosphaerella vogelii Syd. On leaves of *R. cathartica* in Germany.
Phyllosticta advena Sacc. Oval to indefinite ashen-white leaf spots with dull-brown margins on *R. (Sageretia) corymbosa* in Italy.
Phyllosticta alaterni Pass. Circular grayish-white leaf spots with dark-brown margins on *R. alaternus* and *R. frangula* in France and Italy.
Phyllosticta cathartici Sacc. Subcircular ochraceous leaf spots with dull-red margins on *R. cathartica* in Russia, Italy, Denmark, and Austria.
Phyllosticta desmazieri Tass. On leaves of *R. cathartica* in France.
Phyllosticta jahniana Petr. and Sacc. Subelliptical to irregular black leaf spots on *R. cathartica* in Bohemia.
Phyllosticta osteospora Sacc. See Morus.
Phyllosticta rhamnicola Desm. Circular ashen leaf spots on *R. alpina* in France and Belgium.
Phyllostictiella rhamnigena (Sacc.) Tass. Subcircular dull-white leaf spots with dull-brown margins on *R. alaternus* and *R. cathartica* in Portugal, Italy, and France.
Puccinia himalensis (Barcl.) Diet. Brown to black rust pustules on leaves and twigs of *R. dahurica* in India. Aecial stage on leaf blades and sheaths of *Brachypodium silvaticum.*

RHAMNUS—Continued.

Puccinia schweinfurthii (P. Henn.) P. Magn. Brown crustlike rust pustules deforming the leaves of *R. prinoides* and *R. stado* in Abyssinia and east Africa.

Ramularia alaterni Thuem. Large gray spots on leaves of *R. alaternus* in Spain and France.

Rostrupia schweinfurthii P. Henn. On leaves of *Rhamnus* sp. in Abyssinia.

Septoria alaterni Pass. and var. **hispanica** Gz. Frag. Gray leaf spots on *R. alaternus* in Spain and Italy.

Septoria cathartica Pass. Irregular gray leaf spots on *R. cathartica* and *R. saxatilis* in Denmark and Italy.

Septoria frangulae Guep. Small dark-rufous leaf spots on *R. frangula* in France, Bohemia, Silesia, Poland, and Germany.

RHAPHIDOPHYLLUM. See Palmae.

RHAPONTICUM. See, also, Centaurea.

Puccinia rhapontici Syd. Powdery dark-brown rust pustules on leaves of *R. acaule* and *R. pusillum* in north Africa.

RHEUM. RHUBARB. Herbs, grown for their foliage and edible leaf stocks.

Bacterium rhapontiсum Millard. This bacterium is reported as the cause of crown rot of *R. rhapontiсum* in Great Britain. A soft brown rot attacks the crowns and sheathing leaves are discolored and swollen at the base where joined to the crowns. The leaves turn dark-brown and in the absence of terminal buds only spindling shoots are produced from lateral buds.

Cercospora rhei Grog. On leaves of *R. officinale* in France.

Peronospora jaapiana Magn. Downy mildew forming large irregular gray patches on leaves of *R. officinale*, *R. palmatum*, and *R. undulatum* in Switzerland and Germany.

Ramularia rhei Allesch. Circular, then confluent, red-brown leaf spots on *R. undulatum* and *Rheum* (cult.) in Russia, Denmark, and Germany.

Uredo rhei-undulati Diet. Brown leaf rust on *R. undulatum* in Japan.

RHIPSALIS. Epiphytic succulent plants.

Phaeospora caticola Stevens. On *R. cassytha* in Porto Rico.

RHODODENDRON. (Including *Azalea.*) Woody plants cultivated for their flowers and foliage.

Ascochyta rhododendri Lind. Angular brown leaf spots on *Rhododendron* (cult.) in Denmark.

Cercospora handelii Bub. Irregular, then confluent, ochraceous spots destroying leaves of *R. ponticum* in Asia Minor.

Chrysomyxa dietelii Syd. Yellow rust pustules on leaves of *R. arboreum* in India.

Chrysomyxa expansa Diet. Yellow rust pustules on red-brown leaf spots on *R. metternichii* in Japan.

Chrysomyxa himalensis Barcl. Rust on leaf blades and petioles of *R. arboreum*, *R. campanulatum*, and *R. hodgsonum* in India.

Chrysomyxa rhododendri (DC.) De By. Yellow to red-brown rust pustules on *R. brachycarpum*, *R. dauricum*, *R. ferrugineum*, *R. hirsutum*, *R. intermedium*, *R. kotschyum*, *R. myrtifolium*, and *R. suave* in Japan, Siberia, and Europe. The aecial stage occurs on *Picea abies*, *P. obovata*, and *P. pungens*.

Exobasidium butleri Syd. Fleshy growths on lower leaf surfaces of *R. arboreum* in India.

Exobasidium hemisphaericum Shir. Fleshy pyriform to globose galls on lower leaf surfaces of *R. metternichii* and *R. pentamerum* in Japan.

Exobasidium japonicum Shir. Fleshy, smooth, globose, greenish, then reddish-white, galls on leaves of *R. indicum* in Japan.

Exobasidium vexans Mass. See Thea.

Exobasidium yoshinagai P. Henn. Circular to effuse dull-brown leaf spots on *R. tosaense* and *Azalea* sp. in Japan.

Exobasidium zeylanicum Petch. Large spherical white or greenish-white, then powdery white galls on lower leaf surfaces of *R. arboreum* in Ceylon.

Glocosporium rhododendri Br. and Cav. Large irregular blotches on leaves of *R. ponticum* in Italy and Australia.

Glocosporium succineum Sacc. Anthracnose on leaves of *R. chrysanthemum* in Siberia.

Leptosphaeria rhododendri P. Henn. Large brown, then gray, leaf spots on *R. falconeri* in Germany.

Melasmia rhododendri P. Henn. and Shir. On leaves of *R. indicum*, *R. kaempferi*, and *R. tschonoskii* in Japan.

Mycosphaerella occulta Bub. Circular gray leaf spots on *R. ponticum* in Bohemia.

Naemosphaera japonica Sacc. and Syd. On branches of *R. indicum* in Japan.

Phacidium falconeri P. Henn. Gray leaf spots with broad red-brown margins on *R. falconeri* in Germany.

Phyllohendersonia bicolor (Pat.) Tass. On *Rhododendron* sp. in China.

Phyllohendersonia rhododendri (Thuem.) Tass. On leaves of *R. hirsutum* in Italy.

Phyllosticta berolinensis P. Henn. Dull-brown to gray leaf spots on *R. falconeri* in Germany.

Phyllosticta cunninghami Allesch. On leaves of *R. cunninghami* in Germany.

Phyllosticta falconeri P. Henn. Dull-brown to gray circular leaf spots with dark-red margins on *R. falconeri* in Germany.

Phyllosticta rhodendricola Brun. Large oblong to irregular ashen-gray leaf spots with narrow brown margins on *Rhododendron* sp. in France.

Phyllosticta rhododendri-flavi Bub. and Kab. Large circular to irregular red-brown, then dark-brown, leaf spots on *R. flavum* in Bohemia.

Phyllosticta rhodorae (Cke.) Tass. On leaves of *Rhododendron* sp. in England.

Phyllosticta saccardoi Thuem. Brown leaf spots on *R. ponticum* in Russia, France, and Portugal. Reported from New York on *Rhododendron* sp.

Physalospora alpina Speg. On leaves of *R. ferrugineum* in Italy.

Physalospora rhododendri Naum. Die-back of twigs and browning of leaves of *Rhododendron* sp. in Germany.

Placosphaeria rhododendri P. Henn. Circular black stromata on leaves of *Rhododendron* sp. in Japan.

Puccinia rhododendri Fckl. Leaf rust on *R. ferrugineum* in Austria.

Rhytisma rhododendri Fr. Black irregular areas on leaves of *Rhododendron* sp. in Siberia.

Sclerotinia rhododendri Fisch. Forming sclerotia in fruit of *R. ferrugineum* and *R. hirsutum* in Europe.

Septoria azaleae Vogl. Die-back of twigs and browning of leaves of *Azalea indica* in Italy and Germany.

Septoria azaleae-indicae Maubl. Circular white leaf spots with black margins on *A. indica* and *Azalea* sp. in Brazil and Germany.

RHODOMYRTUS. ROSE MYRTLE. Trees or shrubs native to southern Asia.

Helminthosporium rhodomyrti Syd. On leaves of *R. tomentosa* in China.

RHODOTYPOS. JET BEAD. Shrubs grown chiefly for their large white flowers and bright-green foliage

Septoria rhodotypi Höll. Irregular rufous leaf spots on *R. kerrioides* in Hungary.

RHUS. SUMAC. Ornamental woody plants, some species of economic importance.
Aecidium foetidum Diet. Leaf rust on *Rhus* sp. in Japan.
Aecidium incrassatum Syd. Leaf rust on *R. sylvestris* in Japan.
Bagnisiopsis rhoina Syd. and Hara. Dull-black circular to elliptical stromata on leaves of *R. sylvestris* in Japan.
Colletotrichum rhoinum F. Tassi. Anthracnose attacking young shoots and leaf blades and petioles of *R. javanica* (*R. semi-alata*) and *R. verniciflua* in Japan. The lesions are long, elliptical, black, and sunken.
Exobasidium hesperidium Maire. Leaf spots, brown-orange on the lower surfaces, yellow-green, then dark-brown, on the upper, depressed and causing rolling of the leaves of *R. ozyacantha* in Algeria.
Helicobasidium mompa Tan. See Morus.
Phyllachora marginalis Pat. Irregular black stromata on lower leaf surfaces of *Rhus* sp. in Ecuador.
Phyllosticta glabra Brun. Brown angular spots on leaves of *R. glabra* in France.
Phyllosticta rhois West. Angular to irrgular pale brown leaf spots on *R. coriaria* and *R. cotinus* in Denmark, France, and Belgium.
Pileolaria dieteliana Syd. Leaf rust on *R. hypoleuca* in China.
Septonema henningsii Bresad. On leaves of *R. abyssinica* in Abyssinia.
Septoria acruriana P. Henn. Yellow leaf spots on *R. retinorrhaea* in Abyssinia.
Septoria cotini C. Mass. Irregular, then confluent, reddish leaf spots on *R. cotinus* in Italy.
Septoria rhois Lév. Dull-brown leaf spots on *R. hirta* (*R. typhina*) in Russia.
Uncinula vernicifera P. Henn. Powdery mildew on leaves of *R. javanica* (*R. semi-alata*) and *R. verniciflu* in Japan.
Uredo rhoina Syd. Yellow-brown leaf rust on *Rhus* sp. in central Africa.
Uromyces barbeyanus P. Henn. Dark-brown rust pustules on leaves of *R. falcata* in Abyssinia.
Uromyces kiugkistianus Diet. Leaf rust on *R. javanica* and *R. succedanea* in Japan.
Uromyces propinquus Syd. Powdery brown leaf rust on *R. mollis* in Mexico.
Uromyces shiraianus Diet. and Syd. Powdery brown rust pustules on leaves of *R. silvatica*, *R. succedanea*, *R. sylvestris*, and *R. trichocarpa* in Japan.

RHYNCHOSIA. DOLICHOLUS Ag. ROSARYBEAN. Twining, prostrate, rarely erect leguminous herbs and shrubs.
Aecidium eriosematis P. Henn. Leaf rust on *Rhynchosia* and *Eriosema* sp. in Brazil.
Uredo pamparum Speg. Powdery dark-ochraceous rust pustules on leaves of *Rhynchosia* sp. in Argentina.
Woroninella dolichi (Cke.) Syd. See Dolichos.

RIBES. CURRANT. (Including *Grossularia*, GOOSEBERRY.) Shrubs cultivated for fruit and ornament.
Alternaria ribis Bub. and Ranoj. Effuse gray leaf spots with brown margins on *R. rubrum* in Yugoslavia.
Aphelenchus ribes (Taylor.) Goodey. This nematode attacks the buds of *R. nigrum* in Great Britain. The buds are destroyed and adjacent unfolding leaves may also be attacked.
Ascochyta monachorum Bub. On *Grossularia* in Bulgaria.
Ascochyta ribesia Sacc. and Fautr. Numerous circular to angular white leaf spots with dull-purple margins on *R. nigrum* and *Grossularia* sp. in Great Britain, France, and Austria.
Ascochyta ribis Massal. On *R. aureum* and *R. rubrum* in Italy and Russia.
Bacterium sp. A blossom-blight of *Grossularia* sp. due to a bacterium is reported from Great Britain.
Cercospora magellanica Speg. Small reddish leaf spots on *R. magellanicum* in Chile.
Colletotrichum grossulariae Jacz. Brown spots on fruit of *Grossularia* sp. in Russia and Italy.
Coniothyrium vagabundum Sacc. Said to cause premature fall of leaves of *Grossularia* sp. in Europe.
Cronartium ribicola Fisch. See Pinus.
Cytosporina ribis Magn. Causes a dying back and stem cankering of *R. grossularia*, *R. nigrum*, and *R. rubrum* in England and Holland.
Dothiorella vinosa Marchal. See Prunus.
Dothidella ribesia (Pers.) Theiss. and Syd. On twigs of *R. nigrum*, *R. rubrum*, *R. vulgare*, and *Ribes* sp. in Great Britain, middle Europe, and Alaska.
Helicobasidium tanakae Miy. See Morus.
Marsonia grossulariae Oud. Black spots on branches of *Grossularia* sp. in Europe.
Melampsora ribesii-purpureae Kleb. See Salix.
Melampsora ribesii-viminalis Kleb. See Salix.
Phyllosticta pallidocarpa Bub. and Sereb. On leaves of *R. aureum* in Russia.
Phyllosticta ribesicida Speg. Definite circular white leaf spots on *R. rubrum* in Argentina.
Phyllosticta ribicola Sacc. Large yellowish leaf spots on *R. alpinum*, *R. aureum*, *R. nigrum*, *R. rubrum* and *Grossularia* sp. in Europe.
Phyllosticta ribiseda Bub. and Kab. Circular, zoned, red-brown, to gray leaf spots on *R. rubrum* in Bohemia.
Phyllosticta ribis-rubri Vogl. Circular, then confluent, chestnut-brown leaf spots on *R. rubrum* in Italy.
Puccinia depressa Diet. and Neg. Brown rust pustules on leaf blades and petioles of *R. glandulosum* in Chile.
Puccinia jaffueliana Speg. Leaf rust on *R. punctatum* in Chile.
Puccinia ribesii-caricis Kleb. Brown leaf rust on *R. aureum* in Europe.
Puccinia ribis-japonici P. Henn. Brown rust pustules on leaves of *R. japonicum* in Japan.
Septoria grossulariicola C. Mass. Irregular brown leaf spots on *Grossularia* sp. in Italy.
Stereum purpureum Pers. See Prunus.
Venturia grossulariae (Awd. and Fleisch.) Sacc. On leaves of *Grossularia* sp. in Germany.

RICINUS. CASTOR BEAN. Tall annuals, or small trees in the Tropics.
Colletotrichum ricini Bub. and Frag. Anthracnose on leaves of *R. communis* in Spain.
Macrosporium cavarae Parisi. Circular dark-yellow to brown spots on leaves and cotyledons preventing development of plants of *R. communis*, *R. gibsoni*, and *R. viridis* in Italy.
Melampsorella ricini (Biv.-Bern.) Det. Powdery orange-yellow rust pustules on small circular yellow leaf spots on *R. communis* and *R. spectabilis* in India, Ceylon, Madeira, north, south, and east Africa, and southern Europe.
Phyllosticta ricini Rostr. Subcircular brown leaf spots with purple borders on *R. communis* in Denmark.
Physalospora propinqua Sacc. On *R. communis* in the Philippines.
Phytophthora melongenae K. Saw. See Solanum.

RICINUS—Continued.

Phytophthora parasitica Dastur. Circular dull-green infection areas over both surfaces of cotyledons, destroying them and spreading down the stems causing damping off. Irregular spots occur on older leaves. On *R. communis*, *Clarkia* sp., *Fagopyrum* sp., *Gilia* sp., *Lycopersicum esculentum*, *Salpiglossis* sp., *Sesamum indicum*, *Solanum melongena*, *S. tuberosum*, and *Vinca rosea* in India.

A leaf-stalk rot of *Cocos nucifera* is attributed to this fungus in Jamaica. Dark-brown, somewhat sunken spots, one to several inches in diameter, occur on the leaf stalks causing a yellowing and wilting of the leaves, progressing successively until all are attacked and drooping. An internal brown rot of the leaves follows the spotting. The bud and central tissues as a rule are not affected. The larger nuts drop as a result of loss of support from the leaves.

This species is now considered identical with *P. terrestria* Sherb. which occurs in the southern United States and the West Indies as the cause of a foot rot or crown rot of *Citrus*, *Lycopersicum*, and other economic plants.

Sclerotinia ricini Godf. This serious blight of *R. communis*, characterized by a rot of the various parts of the plant, was introduced into the United States on seeds during the late war. It also occurs in Ceylon and India.

RIVINA. Rouge plant. Erect tropical herbs.

Endophyllum rivinae (B. and C.) Arth. Yellow to brown rust pustules on branches, inflorescences and leaf blades and petioles of *R. humilis* and *Trichostigma octandrum* in Cuba and Argentina.

Phyllosticta rivinae Speg. Circular grayish-white leaf spots on *R. humilis* in Argentina.

Puccinia rivinae (B. and C.) Speg. Brown rust pustules on stems and leaf blades and petioles of *R. humilis* and *Trichostigma octandrum* in Porto Rico, Cuba, St. Thomas, and Argentina.

Septoria rivinae Pat. Brown, then white, irregular leaf spots on *R. humilis* and *Trichostigma octandrum* in Guadeloupe.

ROBINIA. Locust. Timber and ornamental trees cultivated for flowers and graceful foliage.

Ascochyta robiniae Sacc. and Speg. Grayish-white leaf spots on *R. pseudoacacia* in Italy.

Mycosphaerella robiniae Siem. On leaves of *R. pseudoacacia* in Russia.

Oidium orbiculare Nannizzi. Powdery mildew on leaves of *R. hispida* in Italy.

Phleospora robiniae (Lib.) v. Hoeh. (*Septoria robiniae* Desm.) Leaf spot on *R. pseudoacacia* in Europe.

Phyllosticta advena Pass. Oval to vague ashen-white leaf spots on *R. corymbosa* and *R. pseudoacacia* in France, Italy, and Bohemia.

Phyllosticta robiniae Sacc. Irregular rufous leaf spots on *R. pseudoacacia* in Italy.

Phytophthora fagi R. Hart. See Fagus.

Septoria curvata (Rbh. and Braun.) Sacc. Circular to oblong brown leaf spots on *R. pseudoacacia* in Russia, Italy, and Germany. Reported from Ohio.

ROLLINIA. Tropical American fruit trees and shrubs.

Ovulariopsis monospora (Pass.) Sacc. and D. Sacc. Ashen leaf spots on *R. hispida* in Italy.

Uredo cherimoliae Lagerh. See Annona.

ROMULEA. Crocuslike bulbs.

Phyllosticta romuleae Gz. Frag. Leaf spots on *R. bifrons* in Spain.

RONDELETIA. Evergreen tropical trees and shrubs.

Phyllosticta rondeletiae Fl. Red, then ashen-white, leaf spots on *R. speciosa* in Italy.

Uredo rondeletiae Arth. and Holw. Leaf rust on *R. cordata* in Guatemala.

RORIPA. See Radicula.

ROSA. Rose. Ornamental shrubs.

Aecidium rosae-abyssinicae P. Henn. Yellow rust pustules on leaves of *R. abyssinica* in Abyssinia.

Apiospora rhodophila Sacc. On branches and spines of *R. alpina* in Italy.

Apiospora rosae Oud. On branches of *R. canina* in Holland.

Ascochyta rosicola Sacc. This fungus produces more or less circular brown spots with distinct red margins on the upper surfaces of leaves of *R. muscosa* in Italy.

Botryosphaeria dothidea (Fr.) Ces. and de Not. (*B. diplodia* Moug.) This disease, sometimes known as brier scab, has been epidemic at times in England on certain varieties of roses. Large, slightly raised black scabs are formed on the stems, which crack more or less concentrically. The hosts are *R. arvensis*, *R. canina*, and *R. centifolia* in Great Britain, continental Europe, and South America.

Catacauma dothidea (Moug.) v. Hoeh. Black stromata on twigs of *Rosa* sp. in Albania and Yugoslavia.

Cercospora hypophylla Cav. Causes a leaf spot of *R. gallica* in Italy.

Cercospora rosae (Fckl.) v. Hoehn. Reported as causing a leaf spot of *R. agrestis*, *R. alpina*, *R. arvensis*, *R. indica*, and *R. pendulina* in Madeira, Italy, Switzerland, and Austria.

Cercospora rosae-alpinae C. Mass. Causes a spotting of the under sides of leaves of *R. alpina* in Italy.

Coniothyrium wernsdorffiae G. Koch. This species, which is said by several writers to differ from *C. fuckelii*, causes a serious canker disease of canes of *Rosa* spp. in Denmark, Austria, and Germany. Diseased areas are more or less oval to circular, frequently girdling the stem, and brown in color with golden-brown margins.

Cryptosporium minimum Lan. Forms yellow-gray to brown spots, 1 to 2 centimeters in diameter on stems of *R. multiflora* in Germany.

Cryptostictis caudata (Preuss.) Sacc. Said to form cankers on branches of *Rosa* spp. in Europe.

Cryptostictis cynosbati (Fckl.) Sacc. Found on fruit of *R. pimpinellifolia* in Germany.

Diaporthe incarcerata (B. and Br.) Nke. (*Phoma incarcerata* [Nke.] Sacc.) Forms dead areas on twigs of *R. banksiae*, *R. canina* and *R. centifolia* in Europe.

Dicoccum rosae Bon. Leaf spot of *Rosa* spp. in Europe.

Didymella spinicolaeformis (DeNot.) Sacc. Minute fruiting bodies on dead areas on branches of *R. alpina* in Italy.

Diplodia rosarum Fr. (*D. centrophila* Pass.) Attacks the branches and spines of *R. banksiae*, *R. canina*, and *R. centifolia* in France and Austria.

Exosporium rosae Fckl. Forms spots on the under sides of living leaves of *Rosa* sp. in Switzerland and Germany.

Guignardia rosae (Auersw.) Petr. (*Laestadia rosae* Auersw.) Brown spots on the upper surfaces of leaves of *R. canina*, *R. centifolia*, and *R. rubiginosa* in Germany.

Gymnoconia rosae (Barcl.) Liro. (*Puccinia rosae* Barcl.) Powdery red-brown to dark-brown rust pustules on both sides of the leaves and on young twigs. Since the mycelium is perennial in the twigs, inspection of dormant plants would fail to reveal the presence of the disease. The hosts are *R. acicularis*, *R. cinnamomea*, *R. macrophylla*, *R. pimpinellifolia*, *R. platyacantha*, and *R. rugosa* in northern Europe, Turkestan, Kamchatka, Caucasus, India, and Japan.

Hendersonia canina Brun. (*H. lichenicola* [Cda.] Fr.) On branches of *R. canina* in France.

Hendersonia rosicola Petch. On twigs of *Rosa* sp. in Ceylon.

ROSA—Continued.

Hendersonia vulgaris Desm. var. **rosae** Vesteg. Produces irregular spots on leaves of *R. alpina* and *R. pimpinellifolia* in Sweden.

Kuehneola Japonica Diet. (*Phragmidium japonicum* Diet.) Brown rust pustules on both leaf surfaces of *R. lucia*, *R. multiflora*, and *R. wichuriana* in Japan.

Kuehneola rosae Sawada. A disease characterized by reddish-orange rust pustules on both leaf surfaces and on stipules, young twigs, and fruit of *R. indica* var. *formosana* in Formosa.

Leptosphaeria coniothyrium (Fcl.) Sacc. On *Rosa* sp. in Tasmania.

Metasphaeria canina Pass. (*M. constricta* Bres.) Attacks branches and spines of *R. canina* in Italy.

Metasphaeria persistens (B. and Br.) Sacc. On stems of *Rosa* sp. in England.

Myxosporium rosae Fckl. Produces blackened areas on branches of *R. canina* in Austria and Germany.

Phoma aculeorum Sacc. Reported on twigs of *R. canina* in Denmark, France, Italy, Switzerland, Austria, and Germany.

Phoma canina P. Brun. (*P. sepincola* [Kichx.] Sacc.) On *R. canina* in France, Switzerland, Austria, and Germany.

Phoma rubiginosa Brun. On fruit of *R. canina* and *R. rubiginosa* in Denmark and France.

Phomopsis incarcerata v. Hoeh. (*Phoma incarcerata* Sacc.) On branches of *R. canina* and *R. banksiae* in Great Britain. See also *Diaporthe incarcerata*.

Phomopsis rosae Grove. (*Phoma rosae* Schulz. and Sacc.) On *R. canina* in Great Britain, Albania and Yugoslavia.

Phragmidium butleri Syd. Yellow to deep-brown or black rust pustules on the lower leaf surfaces of *R. macrophylla* in the Himalaya Mountains in India.

Phragmidium devastatrix Sor. Brown to black powdery rust pustules on both leaf surfaces and on petioles and young twigs of *R. lutea* in central Asia.

Phragmidium egenulum Syd. and Butl. Yellow or dark brown rust pustules on the leaves of *R. webbiana* in Kashmir (India.)

Phragmidium fusiforme Schroet. (*P. rosae alpinae* Wint.) Powdery rust pustules on the under sides of leaves and on petioles and fruits. *P. rosae-acicularis* on *R. acicularis* in Japan is said to be identical. The hosts are *R. acicularis*, *R. alpina*, *R. canina*, *R. nipponensis*, *R. pseudulina*, and *R. silvatica* in Europe.

Phragmidium rosae-lacerantis Diet. Yellow rust pustules changing to brown on the lower sides of leaves of *R. lacerans* in Persia.

Phragmidium rosae-moschatae Diet. Yellow to brown rust pustules on the under surfaces of leaves of *R. moschata* and *R. webbiana* in India.

Phragmidium rosae-multiflorae Diet. Small yellow swellings occur on the petioles and larger leaf veins with yellow rust pustules on the lower leaf surfaces of *R. laevigata* and *R. multiflora* in Japan.

Phragmidium rosae-rugosae Kasai. This rust forms gall-like pustules on petioles, fruit and twigs and often deforms the leaf blades of *R. rugosa* in Japan. The pustules form on the lower leaf surfaces and are yellow at first, becoming brown to black.

Phragmidium rosae-sempervirentis Maire. Orange-yellow rust pustules on the leaves and black powdery spore masses in cankered areas on the stems of *R. sempervirens* in Algeria.

Phragmidium rtanjense Bub. and Ranoj. Bright-yellow to deep brown rust pustules on the lower leaf surfaces of *R. spreta* in Albania and Yugoslavia.

Phragmidium tuberculatum J. Mueller. Brown to black rust pustules on *R. arvensis*, *R. canina*, *R. cinnamomea*, *R. inodora*, *R. lucida*, *R. micrantha*, *R. mollissima*, *R. rubiginosa*, *R. rubrifolia*, *R. scandens*, *R. sempervirens*, *R. septum*, *R. spinosissima*, *R. tomentosa*, and *R. trachyphylla* in Europe, Siberia, and north Africa.

Phragmidium yezoense Kasai. Brown to black rust pustules on the lower surfaces of leaves and on petioles of *R. rugosa* in Japan.

Phyllosticta argillaceae Bres. Causes a leaf spot of cultivated roses in Europe.

Phyllosticta rosarum Pass. A dark-red to black leaf spot of *R. canina* and other cultivated roses in Russia, Italy, Switzerland, Austria, New South Wales, and Germany.

Physalospora rosicola (Fckl.) Sacc. On branches of *R. canina* in Germany.

Protoventuria rosae (DeNot.) Berl. On branches and twigs of *R. alpina* in Italy.

Ramularia banksiana (Pass.) Sacc. On leaves of *R. banksiae* in Europe.

Septoria rosae Desm. This widespread European disease, known as leaf scorch, is characterized by pale-brown or dirty-white spots, irregular in shape, bounded by a broad purple margin. The centers of the diseased areas tend to fall out. The disease is especially serious on nursery stock, causing practical defoliation, and when this occurs over several seasons, the cumulative effect is serious. The hosts are *R. canina*, *R. pomifera*, *R. pumila*, *R. sancta*, *R. scandens*, and other species of cultivated roses in Europe, New Zealand, Abyssinia, and Porto Rico.

Septoria rosae-arvensis Sacc. Causes a leaf spot of *R. arvensis* and *R. sempervirens* in Spain and other European countries. Probably synonymous with the preceding.

Septoria rosarum West. Produces numerous white rounded spots with broad, purple borders on the upper surfaces of leaves of *R. cinnamomea*, *R. collina*, and *R. coriifolia*. Reported from Russia, Belgium, Italy, Great Britain, India, and Brazil. Probably not specifically distinct from *S. rosae* Desm.

Stereum purpureum Pers. See Prunus.

Stilbum sp. This fungus produces "small purplish spots on the rose stems which gradually increase in size, sometimes even girdling the branch. The bark becomes shrivelled and sunken, and in the later stages is covered with the bright red stalks of the fungus surmounted by red globules." Cultivated roses in Trinidad are subject to this disease.

Uncinula simulans Salm. A powdery mildew on the leaves and young twigs of *R. multiflora* in Japan.

ROSMARINUS. ROSEMARY. Hardy evergreen shrubs with aromatic leaves.

Ascochyta rosmarini Tassi. Circular to angular white leaf spots with red-brown borders on *R. officinalis* in Italy.

ROTTBOELLIA. Annual or perennial robust tropical grasses.

Cintractia densa McAlp. Smut sori in compact, dark-brown masses along rachides, destroying the florets of *R. compressa* in Australia.

Meliola parenchymatica Gaill. Black, superficial fungus patches on leaves of *R. exaltata* in the Philippines.

Phyllachora rottboelliae Syd. and Butl. Dull-black stromata on leaves of *R. exaltata* in India and the Philippines.

Puccinia cacao McAlp. Chocolate-brown to dark-brown rust pustules on leaves of *R. compressa* and *R. japonica* in India, Japan, and Australia.

ROTTBOELLIA—Continued.
Puccinia microspora Diet. Brown rust pustules on purple to brown leaf spots on *R. compressa* in Japan.
Puccinia rottboelliae Syd. Linear powdery black rust sori on leaves of *R. arundinacea* in Abyssinia and the Congo.
Schizothyrium congoensis Beeli. On *Rottboellia* sp. in the Congo.
Uromyces rottboelliae Arth. Leaf rust on *R. compressa* and *R. speciosa* in India and Japan.
Ustilago flagellata Syd. and Butl. Elongate powdery dark-brown smut sori in spikes and rachides of *R. exaltata* and *Rottboellia* sp. in the Philippines and the Congo.
Ustilago rottboelliae Syd. and Butl. Black powdery smut sori, deforming and destroying rachides and flowers of *R. compressa* in China, Japan, and India.
ROUPALA. Tropical American trees.
Catacauma rhopalinum (Mont.) Theiss. and Syd. Black stromata on leaves of *Roupala* sp. in Cayenne, Brazil and Peru.
Melasmia roupalae Allesch. On leaves of *Roupala* sp. in Brazil.
ROYENA. Evergreen trees and shrubs.
Accidium royenae C. and M. Leaf rust on *R. pallens* in the Union of South Africa.
ROYSTONEA. See Palmae.
RUBIA. Hardy herbs.
Aecidium arechavaletae Speg. Yellow stem rust on *Rubia* sp. in Uruguay.
Aecidium rubiae Diet. Leaf rust on *R. cordifolia* in Japan.
Ascochyta rubiae Rub. Gray circular leaf spots with purple-brown areoles on *R. peregrina* in Yugoslavia.
Mycosphaerella peregrina (Cke.) Lind. On stems and leaves of *R. peregrina* in England.
Peronospora rubiae Gäum. Downy mildew on leaves of *R. tinctorum* in Holland, France and Dalmatia.
Pseudopeziza autumnalis (Fr.) Karst. See Galium.
Pseudopeziza komarovii Jacz. Brown fruiting disks on yellow-brown sunken leaf spots on *R. cordifolia* in Manchuria.
Puccinia algerica Pat. Brown to black rust pustules on leaves of *R. laevis* in Algeria.
Puccinia collettiana Barcl. Leaf rust on *R. cordifolia* in India.
Puccinia dimorpha Syd. Chestnut-brown rust pustules on leaves and stems of *R. petiolaris* in the Union of South Africa.
Puccinia rubiicola Syd. Brown rust pustules on leaves of *R. discolor* in Abyssinia.
Puccinia rubivora P. Magn. Leaf rust on *R. fruticosa* in the Canary Islands.
Thecopsora rubiae Kom. Yellow and dark-brown rust pustules on leaves of *R. cordifolia* in Japan, China, Manchuria, Ceylon, Siberia, and Russia.
RUBUS. Blackberry. Raspberry. Dewberry. Herbs and shrubs cultivated for their fruit.
Ascochyta fenillcauboisiana Sacc. and Roum. White leaf spots with narrow dark borders on *Rubus* sp. in France.
Ascochyta rubi Sacc. Small subcircular deep red-brown leaf spots on *R. caesius*, *R. fruticosus* and *R. saxatilis* in Siberia, Russia, Italy, and Germany.
Cercospora garbiniana C. Mass. Grayish-white leaf spots on *R. fruitcosus* in Italy.
Cercospora rubicola Thuem. Subcircular dull yellow-brown leaf spots with purplish margins on *R. fruticosus* in Russia and Portugal.
Cladosporium sp. Said to cause a stunting of plants of *Rubus* sp. (raspberry) in Switzerland, due to cankers formed on the stems. Fruit fails to form and the leaves are discolored.
Coccomyces rubi (Fr.) Karst. On leaves of *R. caesius*, *R. fruticosus*, and *R. idaeus* in Europe.
Coleroa chaetomium (Kze.) Rabh. On leaves of *Rubus* spp. in Europe.
Coniothyrium tumaefaciens Guess. Causes galls as large as walnuts on canes of *R. fruticosus* in Great Britain.
Coryneum follicolum Fckl. See Crataegus.
Didymella applanata (Niessl.) Sacc. Irregular gray cankered areas on canes of *Rubus* spp. (raspberry and loganberry), causing wilting as well as witches'-brooms in Great Britain and continental Europe.
Gerwasia rubi Rac. Golden yellow rust pustules on leaves of *Rubus* sp. in Java.
Gnomoniella cercosporae Pass. On leaves of *R. glandulosus* in Italy.
Hamaspora acutissima Syd. Leaf rust on *R. moluccanus*, *R. nantoensis*, *R. rolfeii*, and *Rubus* sp. in Java, Formosa, Australia, and the Philippines.
Hamaspora engleriana (Diet.) Syd. Yellow rust pustules on leaves of *R. volkensianus* in East Africa.
Hamaspora gedeana Rac. Yellow leaf rust on *R. alpestris* in Java.
Hamaspora longissima (Theum.) Koern. Yellow leaf rust on *R. moluccanus*, *R. pinnatus* and *R. rigidus* in India, Australia, Uganda, and the Union of South Africa.
Hapalosphaeria deformans Syd. Attacks flowers of *R. dumetorum* in Germany.
Helminthosporium cymbispermum Pat. On leaves of *Rubus* sp. in Ecuador.
Hendersonia rubi West. White patches on canes, causing sterility and finally wilting of *R. fruticosus*, *R. idaeus*, and *R. vitifolius* in Great Britain, France, Italy, and Belgium.
Hyalotheles dimerosperma Speg. On leaves of *R. urticaefolius* in Brazil.
Hyponyces rubi (Osterw.) Wr. Attacks roots of *R. idaeus* in Switzerland.
Kuehneola andicola Diet. Leaf rust on *R. geoides* in Chile.
Kuehneola uleana Syd. Rust on leaves of *Rubus* sp. in Brazil.
Mycosphaerella chamaemori (Karst.) Lind. On leaves of *R. chamaemorus* in Finland.
Mycosphaerella minoensis Syd. On leaves of *Rubus* sp. in Japan.
Mycosphaerella winteri (Pass.) Sacc. On leaves of *R. corylifolius* in Italy.
Ovularia rubi Bub. Circular to irregular, often confluent, brown leaf spots on *Rubus* sp. in Hungary.
Phragmidium arcticum Lagh. Yellow and black rust pustules on leaves of *R arcticus* in Sweden and Finland.
Phragmidium assamense Syd. Leaf rust on *R. lasiocarpus* in India.
Phragmidium barclayi Diet. Yellow and brown rust pustules on red-brown leaf spots on *R. koehleri* and *R. lasiocarpus* in India.
Phragmidium barnardi Plowr. and Wint. Rust on leaf blades and petioles and on peduncles of *R. parvifolius* in Australia.
Phragmidium burmanicum Syd. Leaf rust on *R. lasiocarpus* in Burma.
Phragmidium griseum Diet. Yellow and black rust sori on irregular leaf spots on *R. incisus* in Japan.
Phragmidium heterosporium Diet. Leaf rust on *R. trifidus* in Japan.
Phragmidium incompletum Barcl. Yellow leaf rust on *R. paniculatus* in India.
Phragmidium nambrianum Diet. Powdery black rust pustules on sunken violet-brown leaf spots on *R. kinashii* and *R. occidentalis* in Japan.

RUBUS—Continued.
Phragmidium octoloculare Barcl. Black leaf rust on *R. rosaefolius* in Japan.
Phragmidium orientale Syd. Golden rust pustules on leaves of *R. ellipticus* and *R. moluccanus* in India and Ceylon.
Phragmidium pauciloculare Syd. Powdery rust pustules on leaf blades and petioles and on peduncles of *R. parvifolius*, *R. phoenicolasius*, and *R. triphyllus* in Japan.
Phragmidium quinqueloculare Barcl. Rust on leaves and stems of *R. biflorus* in India.
Phragmidium rubi (Pers.) Wint. Yellow and powdery black rust pustules on lower leaf surfaces of *Rubus* spp. (nearly 40 species are recorded as hosts) in Japan and Europe.
Phragmidium rubi-fraxinifolii Syd. Leaf rust on *R. fraxinifolius* and *R. taivanianus* in Formosa.
Phragmidium rubi-idaei (DC.) Karst. Yellow to black rust pustules on leaves of *R. idaeus* in Japan, Alaska, Siberia, and Europe. Probably occurs in the United States.
Phragmidium rubi-japonici Kasai. Black rust pustules on leaves of *R. japonicus* in Japan.
Phragmidium rubi-saxatilis Liro. Yellow and powdery black rust pustules on leaves of *R. saxatilis* in northern Europe.
Phragmidium rubi-sieboldii Kaw. (*Hamaspora rubi-sieboldii* [Kaw.] Diet.) Leaf rust on *R. sieboldii* in Japan.
Phragmidium rubi-thunbergii Kus. Leaf rust on *R. idaeus* and *R. thunbergii* in Japan.
Phragmidium violaceum (Schultz.) Wint. Golden-yellow and black rust pustules on leaves of *Rubus* spp. (60 species are listed as hosts) in China, Indo-china, Egypt, and Europe
Phragmidium yoshinagai Diet. Leaf rust on *R. crataegifolius*, *R. morifolius*, and *R. sorbifolius* in Japan.
Phragmidium zeylanicum Petch. Leaf rust on *R. lasiocarpus* in Ceylon
Phyllosticta argillacea Bres. On leaves of *R. idaeus* in Bohemia and Silesia.
Phyllosticta cryptocarpa Kab. and Bub. Brown, often confluent, leaf spots with purple margins on *R. glandulosus* in Bohemia.
Phyllosticta fusco-zonata Thuem. Subcircular dull-brown leaf spots on *R. idaeus* in Algeria, Russia, and Italy.
Phyllosticta pallor (Berk.) Oud. On *Rubus* (raspberry) in Great Britain and Holland.
Phyllosticta rubi P. Henn. Circular leaf spots with red-brown margins on *Rubus* sp. in Brazil.
Phyllosticta rubicola Rabenh. Subcircular small white leaf spots with blood-red margins on *R. caesius* and *R. idaeus* in Russia, Dalmatia, Italy, and Germany.
Phyllosticta rubi-odorati Bub. and Kab. On leaves of *R. odoratus* in Bohemia.
Rhabdospora ramealis (Desm. and Rob.) Sacc. and var. **macrospora** App. and Laub. Causes small purple-red areas on stems of *Rubus* spp. in Europe.
Sclerotinia rubi Carm. White, then brown, sclerotia on leaves of *R. fruticosus* in Great Britain.
Septoria campoi Speg. On leaves of *R. sanctus* in Chile.
Uredo chinensis Diet. Leaf rust on *R. buergeri* and *R. reflexus* in Japan.
Uredo imperialis Speg. Golden-yellow leaf rust on *R. imperialis* in Argentina.
Uredo sinensis Diet. Brown rust pustules on leaves of *R. reflectus* in China.
Uromyces arthuri Syd. Leaf rust on *R. guyanensis* and *R. schiedeanus* in Guatemala.
Uromyces cundimarcensis Mayor. Leaf rust on *R. peruvianus* in Colombia.
Uromyces lagerheimii P. Magn. Yellow leaf rust on *R. glaucus* and *Rubus* sp. in Ecuador and Colombia.
Uromyces loesenerianus (P. Henn.) Syd. Yellow leaf and stem rust on *R. bogotensis*, *R. braziliensis*, *R. trichomallus*, and *R. urticaefolius* in Central and South America.
Uromyces pittierianus P. Henn. Yellow leaf rust on brown sunken spots on *R. adenotrichos* and *Rubus* sp. in Costa Rica.
Uromyces quitensis Lagh. Leaf rust on *Rubus* sp. in Ecuador.
Uromyces rubi Diet. and Holw. Rust on sunken leaf spots on *R. adenotrichos*, *R. glaucus*, *R. laxus*, *R. poliophyllus*, *R. pringlei*, and *R. trichomallus* in Mexico, Guatemala, and Costa Rica.
Uromyces rubi-urticifolii Mayor. Rust on leaves of *R. urticaefolius* in Colombia.
Uromyces variabilis Mayor. Leaf rust on *Rubus* sp. in Colombia.
Venturia kunzei Sacc. On leaves of *R. cacsius*, *R. idaeus*, and *R. pedatus* in Europe and Alaska.

RUDGEA. Shrubs or small trees.
Phyllachora rudgeae Syd. Black stromata on yellow-brown leaf spots on *R. coriacea* in Brazil.

RUELLIA. Acanthaceous herbs or shrubs.
Aecidium tuberosa P. Henn. Leaf rust on *R. tuberosa* in Peru.
Puccinia mussoni McAlp. Yellow and dark-brown rust sori on leaves of *R. australe* in Australia.
Puccinia paranahybae P. Henn. Dark-brown leaf rust on *R. longifolia* in Brazil and Argentina.
Puccinia ruelliae-bourgaei Diet. and Holw. Powdery yellow and brown rust pustules on leaves of *R. bourgaei* in Mexico
Uromyces ruelliae Holw. Brown to black rust pustules on leaves of *Ruellia* sp. in Mexico.

RUMEX. Dock. Sorrel. Perennial herbs, mostly weeds.
Ascochyta rumicis Bub. and Malk. On *Rumex* sp. in Bulgaria.
Ascochyta vicinia Sacc. On stems of *R. acetosella* and *Salvia officinalis* in Spain, France, and Italy.
Cylindrosporium pulchrum Speg. On leaves of *R. obtusifolius* and *R. pulcher* in Argentina.
Depazea acetosa Op. On leaves of *R. acetosa* in Siberia, Austria, and Germany.
Mycosphaerella insulana Bub. and Syd. On leaves of *Rumex* sp. in Germany.
Mycosphaerella rumicis Desm. Circular brown leaf spots on *R. conglomeratus*, *R. crispus*, *R. hydrolapathum*, and *R. nemolapathum* in China and Europe.
Ovularia canaegricola P. Henn. Pale-yellow or brown leaf spots with white centers on *R. hymenosepalus* in Germany.
Ovularia rubella (Bon.) Sacc. On leaves of *R. aquaticus* in Germany.
Ovularia rumicis Eliasson. Circular to elliptical ochraceous leaf spots on *R. crispus* in Sweden.
Pellicularia chilensis Speg. Leaf blight of *R. crispus* in Chile.
Peronospora rumicis Cda. Downy mildew on leaves, stems, and panicles of *R. acetosa*, *R. acetosella*, *R. arifolius*, *R. auriculatus*, *R. crispus*, *R. lunaria*, *R. scutatus*, *R. thyrsiflorus*, and *R. vesicarius* in India, Tunis, and Europe.
Phyllosticta acetosae Sacc. Subcircular brown leaf spots on *R. acetosa* in Italy and Russia.
Phyllosticta straminella Bres. On leaves of *R. acetosa* in Germany.
Physoderma acetosellae Rostr. Spore masses in deformed ovaries of *R. acetosella* in Denmark.
Puccinia biformis Lagh. Dark-brown rust pustules on leaves and stems of *R. buccephalophorus* in Portugal.
Puccinia dissiliens Cke. Brown leaf rust on *Rumex* sp. in northern India.
Puccinia ludwigii Tepper. Rust on leaves of *R. brownii* in Australia.
Puccinia nepalensis Barcl. and Diet. Brown rust pustules on leaves of *R. nepalensis* in India.
Puccinia pachyphloea Syd. Black rust pustules on leaf blades and petioles and stems of *R. tuberosus* in Kurdistan.
Puccinia rumesicola Gz. Frag. Leaf rust on *R. papillaris* in Spain.

RUMEX—Continued.

Puccinia rumicis-scutati (DC.) Wint. Brown leaf and stem rust on *R. scutatus* in Europe and possibly Australia.

Puccinia trailii Plowr. See Phragmites.

Ramularia rumicis K. and Cke. Large dull-brown leaf spots on *R. obtusifolius* in the Union of South Africa.

Ramularia rumicis-scutati Allesch. Circular leaf spots with white centers and broad ochraceous margins on *R. scutatus* in Spain, Switzerland, and Germany

Schroeteriaster alpinus (Schroet.) P. Magn. Brown rust pustules on leaves of *R. alpinus* in central Europe.

Septoria acetosae Oud. Brown leaf spots with purple borders on *R. acetosa* and *Rumex* sp. in Denmark and Holland.

Septoria glacialis Ferr. Ochraceous circular zoned leaf spots on *R. scutatus* in Italy.

Stigmatea rumicis (Desm.) Schroet. On leaves of *R. alpinus* in Switzerland.

Uredo purpurascens Diet. Leaf rust on *R. romassa* in Chile.

Uromyces acetosae Schroet. Yellow and brown rust pustules on leaf blades and petioles of *R. acetosa*, *R. acetosella*, and *R. arifolius* in Europe.

Uromyces argaeus Maire. Powdery brown rust pustules on leaves of *R. tuberosus* in Asia Minor.

Uromyces borealis Liro. Leaf rust on *R. arifolius* in Finland.

Uromyces crassipes Diet. and Neg. Brown leaf rust on *R. cuneifolius* in South America.

Uromyces tingitanus P. Henn. Leaf rust on *R. tingitanus* in Algeria and Tunis.

Urophlyctis rübsaameni Magn. Tuberous excrescences on roots of *R. scutatus* in Switzerland and Germany.

Ustilago domestica Bref. Dull-violet masses of smut spores in stems, leaves, and inflorescences of *R. domesticus* in Norway.

Ustilago kühneana (Wolf) F. v. W. Smut sori in leaves and panicles of *R. acetosa*, *R. acetosella*, and *R. tuberosus* in north Africa and Europe.

Ustilago lagerheimii Bref. Powdery dark-violet masses of smut spores in stems and petioles of *Rumex* sp. in Ecuador.

Ustilago warmingii Rostr. Leaf smut on *R. crispus* and *R. domesticus* in Finland.

Venturia rumicis (Desm.) Wint. On leaves of *R. alpinus*, *R. crispa*, *R. nemorosus*, and *R. obtusifolius* in French North Africa, Denmark, and Bulgaria.

RUSCUS. BUTCHER'S-BROOM. Erect shrubs.

Colletotrichum erumpens Sacc. On *R. aculeatus* in France.

Leptosphaeria rusci (Walbr.) Sacc. On stems of *R. aculeatus* and *R. hypoglossum* in Switzerland, Spain and Italy.

Phyllosticta danoës Pass. Large irregular gray-white spots with brown margins on pseudo leaves of *R. racemosus* in France.

Phyllosticta ruscicola Dur. and Mont. Subcircular white leaf spots with brown margins on *R. aculeatus*, *R. androgynus*, *R. hyppophyllum*, and *R. hypoglossum* in Spain, Portugal, Italy, and France.

Septoria hypoglossi Massal. Leaf spots on *R. hypoglossum* in Italy.

Urocystis jaapiana Sacc. Smut on *R. aculeatus* in France, Spain, and Italy.

RUSSELIA. CORAL BLOW. Shrubs.

Phyllosticta armitageana Sacc. On leaves of *R. juncea* in Malta.

RUTA. RUE. Perennial glandular herbs.

Aecidium rutae Har. Yellow rust on leaf blades and petioles of *R. chalepensis* in France and Sardinia.

Ovulariopsis haplophylla (P. Magn.) Trav. On leaves of *R. graveolens* in Italy.

SABAL. See Palmae.

SACCHARUM. Sugar cane. Tall-growing, perennial, sugar-yielding grasses.

Allantospora radicicola Wakk. On roots of *S. officinarum* in Java and Hawaii.

Bacillus flavidus Fawc. Reported as one of the causes of top rot or "polvillo" of sugar cane (*S. officinarum*) in Argentina.

Bacillus sacchari Speg. This bacterium is considered by Spegazzini as the cause of the "polvillo" disease of sugar cane (*S. officinarium*) in Argentina. Fawcett, however, in the most recent work on the disease, assigns *B. flavidus* and two other unnamed species as the causes. The disease is typical of diseases discussed under the head of top rot.

Bacterium sp. Causes a leaf-scald disease on *S. officinarum* in Australia and probably New Guinea.

Bacterium vascularum Cobb. The gumming disease due to this bacterium is a serious sugar-cane (*S. officinarum*) trouble in New South Wales, Queensland, Mauritius, New Guinea, Borneo, Fiji, Reunion, Java and possibly in Brazil. What is apparently the same disease has appeared in Porto Rico within the last few years. Externally diseased canes are stunted, the leaves show red longitudinal stripes, and there may be top rotting. On cutting across infected canes the bundles show discolored and a yellow gumlike substance oozes out. Many of the bundles are stained red, the discoloration extending out into the leaves. The gumming disease of Java is probably not due to *B. vascularum*, since the typical gummy exudate from the cut end of infected canes is entirely absent. Etiological studies have not yet been carried out.

Bakerophoma sacchari Died. Small brown leaf spots with red margins on leaves and leaf sheaths of *S. officinarum* in the Philippines.

Bunchy top. See Musa.

Cephalosporium sacchari Butl. This fungus causes a wilt of sugar cane in India, the Philippines, British West Indies, and the Union of South Africa. Affected stools become stunted, the leaves drying up and stems becoming light and hollow. Diseased canes internally are diffuse purple or dirty-red in color. These areas are distinct from the red-bordered white patches characteristic of red rot (*Colletotrichum falcatum*).

Cercospora accrosum Dick. and Hein. Black spots on leaves of *S. officinarum* in Java and the Philippines.

Cercospora kopkei Krueg. Dull-yellow, often confluent, leaf spots becoming red at the centers on *S. edule*, *S. glongong*, *S. officinarum*, and *S. spontaneum* in Java, Japan, Reunion, Formosa, Queensland, the Philippines, Argentina, and Cuba.

Cercospora longipes Butl. Small oval red leaf spots on *S. officinarum* in Porto Rico and India. The spots increase in size, becoming brown with yellow areolae and finally straw-colored, with oval, deep brown rings surrounding.

Cintractia pulverulenta Cke. and Mass. Smut in inflorescences of *S. arundinaceum* in India.

Cytospora sacchari Butl. The leaf sheaths take on a dark dull-red color and are bound firmly together by the mycelium of the fungus. The leaf blades turn brown and hang parallel to the stalk. Young stalks are killed outright and on older ones which have formed cane, brown lesions appear on the internodes, triangular at first when originating at the nodes, irregular if starting from wounds or cracks in the internodes. The fungus fruits on the outer leaf sheaths, the black, elongated necks of the pycnidia being rough to the touch. The disease occurs on *S. officinarum* in Porto Rico, Barbados, Formosa, India, and Brazil.

SACCHARUM—Continued.

Dinemasporium sacchari P. Henn. Circular to oblong brown leaf spots with red-brown margins on *S. officinarum* in Peru.

Diplodia cacaoicola P. Henn. Common as a wound parasite of cuttings and on dead canes and occasionally causing damage to susceptible varieties of *S. officinarum*. Affected canes wither and die, and are internally reddened, turning brown on exposure to air. See also Theobroma.

Eriosphaeria sacchari (v. Breda) Went. Dark-red circular leaf spots up to 1 centimeter in diameter on *S. officinarum* in Java and Trinidad.

Euryachora sacchari Averna. Stromata on leaves of *S. officinarum* in Brazil.

Fiji disease. Linear galls are produced on the leaves and leaf sheaths from 2 millimeters to 6 centimeters long, light-green in color at first and finally brown, bursting open, exposing a brownish mass. Diseased leaves are darker green than normal, as well as smaller and more slender. Infected plants, due to the shortening of the internodes are small, stunted, and have a bunchy growth of leaves at the top. The roots are small, bunchy, and slightly rotted. New shoots arising from the bases of heavily infected plants have a yellow streak running down the unfolded leaves which become distorted and wrinkled. A brown rot sometimes occurs in advanced cases. The cause of the disease is uncertain, but has recently been attributed to a protozoan (*Phytamoeba sacchari* McWhorter). The disease occurs in Australia, New Guinea, Fiji, and the Philippines on *S. officinarum*.

Gnomonia iliau Lyon. Iliau disease of sugar cane (*S. officinarum*) is characterized by a binding of the leaf sheaths firmly together by the mycelium of the causative fungus. The leaf blades die, turn brown, and hang down. The leaf sheaths are pinkish-brown in color and the stalks, if any cane is produced at all, are deep bluish-gray. The disease commonly attacks young shoots and prevents their further development. The imperfect or Melanconium stage of the fungus is produced internally in leaf sheaths and stalks, but the perithecia occur on the outer leaf sheaths, the beaks projecting. The disease is prevalent in Hawaii and is known also from limited areas in Louisiana.

Helminthosporium sacchari Butler. The eye-spot disease occurs as linear brown leaf spots with definite margins on *S. officinarum* in Porto Rico, Jamaica, Cuba, Barbados, St. Domingo, Hawaii, the Philippines, Java, Reunion, India, and the Union of South Africa. On some varieties the spots are oval, small, zoned, and yellow-brown in color. Susceptible varieties are checked in their growth and often stunted. The disease is known from Florida and Georgia.

Hendersonia sacchari Butl. This fungus causes withering of *S. officinarum* in India and Ceylon. The leaves die from the center outward and downward. Individual leaves die back from the tip and along the margins. Internally the diseased canes are dry and pithy, with a cavity in each internode. The roots are rotted.

Leptosphaeria sacchari v. B. H. Numerous oval dull-gray spots with definite red or red-brown margins occur on the leaves of *S. officinarum*. There may be an indistinct yellow halo surrounding each spot. In many varieties of cane the fungus causes premature withering and death of the leaf blades. The fungus is known from practically all the sugar-cane growing countries of the world. It is reported from Alabama and Florida.

Leptosphaeria saccharicola P. Henn. Pale-brown leaf spots with darker margins on *S. officinarum* in Brazil. Probably not distinct from the preceding species.

Leptosphaeria spegazzinii Sacc. and Syd. and var. **minor** Speg. On leaf blades and sheaths of *S. officinarum* in Argentina.

Leptosphaeria tucumanensis Speg. On leaves of *S. officinarum* in Argentina.

Linospora sacchari Averna. On leaves of *S. officinarum* in Brazil.

Lophodermium sacchari Lyon. Black linear fruiting bodies on midribs and sheaths of "sereh" cane in Hawaii, and "may be mildly parasitic."

Marasmius sacchari Wakker. Root disease is one of the most serious, if not the most serious, disease of sugar cane (*S. officinarum*) and occurs in every sugar-cane growing country. There is a very extensive literature on the subject, the disease being attributed in large part to the above fungus. Most recent studies indicate, however, that other fungi, such as *Rhizotonia* spp., *Pythium*, etc., are the initial agents and *Marasmius*, *Odontia*, and other hymenomycetes secondary forms, only mildly parasitic at best. *M. sacchari* is commonly found in connection with root disease, the mycelium binding the lower leaf sheaths together by typical mycelial fans. The small white sporophores are produced in abundance in and around diseased stools during wet weather. Other species occur less commonly in similar manner.

Melanconium sacchari Mass. The rind disease of sugar cane (*S. officinarum*) occurs in practically every cane-growing country. The fungus causes a souring of the juice and a soft white rot of the tissues, affected stalks withering and drying up. Fruiting pustules form in great numbers on rotted stalks and at the base of leaf sheaths as small black areas from which the spore mass exudes, often as long, threadlike processes. The fungus is for the most part a wound parasite and seldom serious, except on overmature cane or cane first weakened by other agencies. Occurs as a saprophyte in Louisiana and Florida.

Meliola arundinis Pat. Superficial black fungus patches on leaves of *S. officinarum* in China and the Philippines.

Meliola sacchari Syd. Similar to the preceding species, in the Philippines.

Mosaic (*Mottling*). The mosaic or yellow-stripe disease of sugar cane (*S. officinarum*) occurs in Porto Rico, Cuba, Jamaica, Guadeloupe, Barbados, Trinidad, Santo Domingo, Argentina, Egypt, Hawaii, the Philippines, Java, China, and Formosa. The disease has been found also on other grasses, including *Chaetochloa magna*, *Brachiaria platyphylla*, *Holcus sorghum*, *Paspalum boscianum*, *Pennisetum glaucum*, *Syntherisma sanguinale*, and *Zea mays*. It has been especially serious on maize (*Zea*). By inoculation other grasses including *Miscanthus sinensis*, *Saccharum narenga*, *Chaetochloa lutescens*, *C. magna*, and *Echinochloa crusgalli* have been proved susceptible. This disease was introduced into Louisiana some years ago and has been disseminated from there into Florida, Georgia, Alabama, and Mississippi, and has already caused considerable losses.

The disease is characterized by a mottling of the leaves, varying in shading and patterns, but always very characteristic. In early infections there are no other outstanding symptoms. As the disease progresses in susceptible varieties, and generally after one or two seasons, cankers appear on the stalks, at first as discolored or water-soaked patches or streaks on the internodes, later sunken and brown to grayish white in color. On very susceptible varieties the cankers are very numerous and cause the canes to dry out. In such cane there is also a marked shortening of the joints and premature root development beneath the leaf sheaths. Resistant varieties may show no more than the leaf symptoms over long periods, with relatively slight reductions in yield, while on the other hand fields of susceptible types may be rendered worthless within two seasons.

Mycosphaerella sacchari Speg. On leaves of *S. officinarum* in Cuba, Porto Rico, and Argentina.

Mycosphaerella striatiformans Cobb. This fungus is said to attack the leaf tissue between the veins, causing a characteristic yellow striping. In the final stage the leaves break up into as many strings as there are stripes, the resulting shreds hanging down, while the mid-rib remains erect. The disease occurs in Hawaii on *S. officinarum*.

SACCHARUM—Continued.

Odontia saccharicola Burt. The granular leaf-sheath fungus binds together the lower leaf sheaths and develops fruiting areas as uniform thin white patches with a granular, somewhat powdery surface encircling the stalk from the ground level to a height of about a foot. The stellate-crystal fungus (*Himantia stellifera* Johnston), which often occurs in connection with root disease, is undoubtedly the vegetative stage of this fungus. The exact relation of this fungus to root disease is entirely problematical and its status is approximately the same as Marasmius. *O. saccharicola* is reported from Porto Rico and Santo Domingo, although the stellate crystal form is known from Cuba, Barbados, St. Croix, British Guiana, Trinidad, Hawaii, Zululand, and the Union of South Africa on *S. officinarum*.

Pestalozzia fuscescens Sor. var. **sacchari** Wakk. Irregular gray areas with brown margins on leaves of *S. officinarum* in Java and the Philippines.

Phoma heterospora Speg. Pale-brown indefinite spots on leaves of *S. officinarum* in Argentina.

Phyllachora sacchari P. Henn. Linear dull-black stromata on leaves of *S. officinarum* and *S. spontaneum* in Java, India, and the Philippines.

Phyllachora sacchari-aegyptiaci Br. and Cav. Oblong to irregular, black stromata on leaves of *S. aegyptiacum* in Italy.

Phyllachora sacchari-spontanei Syd. Black stromata on yellowish to red-violet leaf spots on *S. spontaneum* in India and the Philippines.

Phyllosticta hawaiiensis Caum. On leaves of *S. officinarum* in Hawaii.

Phyllosticta sacchari Speg. Linear gray-white leaf spots with purple margins on *S. officinarum* in Porto Rico and Argentina.

Phyllosticta saccharicola P. Henn. Oblong gray-white leaf spots with dull-brown margins on *S. officinarum* in the Congo.

Plasmodiophora vascularum Matz. This organism is said to inhabit the vascular areas of cane stalks (*S. officinarum*) causing a stunting and top rot in Porto Rico and Barbados.

Polvillo (*Gangrena humida*). See Bacillus sacchari.

Rhizoctonia ferrugena Matz. Isolated from diseased roots of *S. officinarum* in Porto Rico.

Rhizoctonia palida Matz. Found on roots of *S. officinarum* in Porto Rico, as well as on *Capsicum* sp. and *Zea mays*.

Sclerospora sp. Oogonial stages of *Sclerospora* occur in the Philippines on *S. officinarum*, *S. spontaneum*, and *Miscanthus japonicus*, the relationships of which to the conidial forms on *Zea* (q. v.) and other hosts are uncertain.

Sclerospora philippinensis Weston. See Zea.

Sclerospora sacchari Miy. This downy mildew of sugar cane (*S. officinarum*) is very serious in Formosa, Australia, and Fiji and has recently been found in the Philippines. Yellow stripes parallel to the veins appear on the leaves, increasing in number until the greater part of the leaf becomes pale and is marked by long, reddish-brown spots, on the under surfaces of which fluffy fungus outgrowths occur. Diseased leaves die and dry up, often becoming much torn or shredded before dying. Leaf sheaths are also affected. With some varieties the joints are abnormally long and greater in number than in healthy canes. If the cane is attacked while young, shoots arise from buds along the stalk, giving a broomlike appearance. It has been possible to infect *Euchlaena* and *Zea mays*.

Sclerospora spontanaea Weston. See Zea.

Sclerotium sp. Yellowish to white irregular patches, broader than long, and with narrow purple or red-brown surrounding zones on leaves of *S. officinarum*. These patches are separated by narrow green or brown gaps, the result being a variegated appearance which is very striking. Irregular white to brown sclerotia form on the diseased areas. The disease is prevalent and serious in Java, India, and the Philippines.

Sclerotium griseum Stevenson. Rounded gray sclerotia on leaf sheaths of *S. officinarum* in Porto Rico. This form has recently been connected with root disease in common with one or more species of *Rhizoctonia*.

Sereh. Sereh has been a serious disease of sugar cane (*S. officinarum*) in Java, although it is now fairly well controlled by the use of resistant varieties and by growing the seed cane in high altitudes. The disease or one very similar is known from Malacca, Borneo, Siam, Hawaii, Malaya, and the Philippines. The cause remains unknown, although the disease is probably to be classed with the infectious mosaics.

Diseased stools fail to produce upright stems and the shortening of the intermodes close to the ground gives the stunted plants a fan-shaped appearance. The leaves are smaller than normal and yellow-striped, dying in severe cases. The roots are weakly developed and soon die. The vascular bundles are reddened and show some gumming. The disease is readily carried in seed pieces without its presence being in evidence.

Sphaeronema adiposum Butl. A weak parasite of cane (*S. officinarum*) cuttings in India and Java. Diseased cuttings are dull-red within, finally drying up, with a black fungus growth on the exterior.

Sphaerulina sacchari P. Henn. Circular to oblong, then confluent, pale brown leaf spots with red-brown margins on *S. officinarum* in Peru.

Stigmina sacchari Speg. On leaves of *S. officinarum* in Argentina.

Thielaviopsis paradoxa (DeSeyn.) v. Hoeh. The pineapple or black rot disease of sugar cane is a disease of cuttings only, acting as a wound parasite when the plantings are made in wet soils or under other unfavorable conditions. Diseased cuttings fail to germinate or young shoots die back, the interior of the cutting turning black and giving off an odor of rotting pineapple. The fungus also causes the common soft rot or shipping rot of pineapples (*Ananas*) which has caused heavy losses to pineapple growers in the West Indies. Circular to irregular brown sunken leaf spots also occur on the pineapple plant due to this fungus. The stem-bleeding disease of coconut (*Cocos nucifera*) and betel palm (*Areca catechu*) is likewise attributed to it. In this instance it acts as a wound parasite, discoloring the tissues as it advances and causing a gummy exudate. The fungus is known to occur in the West Indies from Cuba to Trinidad, British Guiana, Hawaii, the Philippines, Mauritius, Ceylon, Java, Malaya, India, and Gold Coast. It has been isolated from coconut and sugar cane (*S. officinarum*) from Florida and probably occurs on other hosts in the southern United States.

Top rot. Top rot, characterized by the death of the terminal bud and inclosing leaves, is a common disease of sugar-cane (*S. officinarum*) in all cane-growing countries. A number of fungi and probably bacteria are undoubtedly involved, some at least of which do not occur in the United States. The "polvilla" of Argentina and dry top rot (*Plasmodiophora*) of Porto Rico and Cuba are two diseases of this class.

Tylenchus similis Cobb. See Musa.

Uromyces kühnii Krueg. Elongated brown rust pustules on long orange spots on both leaf surfaces of *S. arundinaceum*, *S. fuscum*, *S. officinarum*, and *S. spontaneum* in Java, Japan, India, Burma, Ceylon, the Philippines, and Australia.

SACCHARUM—Continued.

Ustilaginoidea sacchari-narengae K. Saw. Top-shaped dark-olive fruiting bodies in ovaries of *S. narenga* in Japan, the protecting membranes of which rupture at maturity, exposing the dark-olive spore masses.

Ustilago sacchari Rabh. From the growing point there is produced a long, whiplike, black shoot without leaves, often several feet in length and much curved or twisted. In the earlier stages these smutted shoots are protected by silvery-white membranes, which rupture, exposing dense black spore masses. Secondary lateral shoots may also be infected. On *S. cylindricum*, *S. officinarum*, *S. spontaneum*, and *Erianthus asper* in British Guiana, Trinidad, Mauritius, Reunion, Union of South Africa, the Philippines, Japan, Formosa, China, India, Java, Queensland, and Italy.

Ustilago sacchari-ciliaris Bref. Powdery black masses of smut spores in ovaries of *S. ciliare* in India.

SAGERETIA. Armed or unarmed shrubs.

Aecidium sageretiae P. Henn. Leaf rust on *Sageretia* sp. in China.

SAGINA. PEARLWORT. Annual or perennial herbs.

Septoria nivalis Rostr. On peduncles of *S. nivalis* in Greenland.

Septoria velenovskyi Bub. Small circular yellow leaf spots on *S. tenuifolia* in Yugoslavia.

SAGITTARIA. ARROWHEAD. Hardy perennial aquatic herbs.

Cercosporella macrospora Bres. Subcircular dull-brown leaf spots on *S. sagittifolia* in Germany.

Doassansia horiana P. Henn. Black smut sori deforming leaf blades and petioles of *S. sagittifolia* in Japan.

Doassansia limosellae (Kze.) Schroet. Smut sori in circular brown leaf spots on *S. sagittifolia* and *Limosella aquatica* in Europe.

Mycosphaerella sagittariae Tass. On leaf blades, petioles and sheaths and on stems of *S. montevidensis* in Italy.

Phyllosticta sagittifoliae Brun. Subcircular to oblong ochraceous leaf spots with dark brown margins on *S. sagittifolia* in Siberia and France.

Ramularia sagittariae Bres. Small dull-brown leaf spots on *S. sagittifolia* in Germany.

SALIX. WILLOW. Dioecious trees and shrubs.

Ascochyta martianoffiana Thuem. Subcircular ochraceous to gray leaf spots on *S. pyrolaefolia* in Siberia.

Ascochyta salicicola Pass. Angular reddish to dull brown leaf spots on *S. alba* in France.

Ascochyta translucens Kab. and Bub. Circular to angular, then confluent, broad gray leaf spots on *S. caprea* in Bohemia.

Ascochyta vitellinae Pass. On leaves of *A. vitellina* in Europe.

Bacillus hari Hori. and Miy. Bacteriosis of *Salix* sp. in Japan.

Bacterium salicis Day. This bacterium is reported as the cause of the "watermark" disease of *S. alba* and *S. caerulea* in Great Britain. Leaves of infected trees wither and die, turning brown and remaining attached. New shoots and finally entire branches are infected, the disease ultimately reaching the trunk and killing the tree after one or more years. Infected trees develop adventitious shoots and a gummy exudate from dying branches. There is an internal gray staining of the wood.

Botryosphaeria gregaria Sacc. Causes the bark to turn brown, crack and die on twigs and branches of *Salix* sp. (basket willow) in Ireland.

Dinemasporium purpurascens Rich. On branches of *Salix* sp. in France.

Diplodina salicina Cke. and Mass. Causes a die-back of *Salix* spp. in Great Britain.

Discella carbonacea (Fr.) B. and Br. Small bark cankers causing die-back of *Salix* Sp. in Holland and Sweden.

Entyloma salicis Karst. Leaf smut on *S. caprea* in Finland.

Fusicladium saliciperdum (All. and Tub.) Tub. This disease attacks *S. alba*, *S. aurita*, *S. caprea*, *S. cinerea*, *S. cuspidata*, *S. fragilis*, *S. mollissima*, *S. nigricans*, and *S. pentandra* in Scotland, Russia, Denmark, Holland, and Germany. *Venturia chlorospora* (Ces.) Karst. is considered the perfect stage. Dark olive, velvety patches occur on the leaves and spread down along the petioles to the twigs which as a result die back. Long black patches, sharply demarked from the healthy yellow bark, form on the branches.

Gloeosporium deformans (Schroet.) J. Lind. On catkins of *S. caprea* and *S. caprea-cinerea* in Sweden, Finland, Denmark, Silesia, and France.

Graphium ulmi Schwarz. See Ulmus.

Haplothecium amenti (Rostr.) Theiss. and Syd. On catkins of *S. reticulata* in Norway.

Helicobasidium mompa Tan. See Morus.

Helicobasidium tanakae Miy. See Morus.

Hendersonia foliorum Fckl. Parasitic on leaves of *S. caprea* in Europe.

Marsonia didyma (Fckl.) Sacc. Small dull-brown leaf spots on *S. daphnoides*, *S. fragilis*, and *S. amygdalina* (*S. triandra*) in Russia, Poland, France, and Germany.

Marsonia kriegeriana (Bres.) P. Magn. Circular black leaf spots on *S. amygdalina* and *S. triandra* in Germany.

Marsonia obscura Rom. Dull-red leaf spots on *Salix* sp. in Scandinavia.

Marsonia pyrenaica Gz. Frag. On leaves of *S. caprea* in Spain.

Marsonia salicicola (Bres.) Magn. Indefinite rufous leaf spots on *S. alba* and *S. caprea* in Bohemia, Denmark, and Germany.

Marsonia salicis Trail. On leaves of *Salix* sp. in Norway.

Marsonia santonensis (Pass.) Bub. On leaves of *S. pentandra* in Austria.

Melampsora abieti-capraearum Tub. Yellow and brown rust pustules on needles of *Abies alba* and *A. nordmanniana* and on the leaves of *S. caprea* in Denmark, France, Spain, and Germany.

Melampsora allii-fragilis Kleb. Yellow leaf rust on *Allium ascalonicum*, *A. cepa*, *A. oleraceum*, *A. porrum*, *A. sativum*, *A. schoenoprasum*, *A. ursinum*, *A. vineale*, *Salix fragilis*, *S. pentandra*, *S. triandra*, and *S. viminalis* in Europe.

Melampsora amygdalinae Kleb. Leaf rust on *S. amygdalina*, *S. hippophaefolia*, and *S. pentandra* in Europe.

Melampsora coleosporioides Diet. Yellow to brown rust pustules on leaves of *S. babylonica* and *S. glandulosa* in Japan.

Melampsora epiphylla Diet. Yellow to dark-brown rust pustules on leaves of *S. shikokiana* in Japan.

Melampsora euonymi-capraearum Kleb. Yellow to brown rust pustules on sunken, yellow circular to irregular leaf spots on *S. aurita*, *S. caprea*, *S. cinerea*, *S. incana*, *S. viminalis*, *Euonymous europaeus*, *E. latifolia*, and *E. verrucosa* in Europe and Japan.

Melampsora galanthi-fragilis Kleb. See Galanthus.

Melampsora humboldtiana Speg. Leaf rust on *S. humboldtiana* in Uruguay and Argentina.

Melampsora humilis Diet. Yellow to brown rust pustules on leaves of *S. multinervis* in Japan.

Melampsora lapponum Lindf. Leaf rust on *S. lapponum* and *Viola epipsila* in Sweden.

SALIX—Continued.

Melampsora larici-caprearum Kleb. Yellow leaf rust on *S. aurita, S. caprea, S. lapponum, S. pentandra, S. phylicifolia, S. pirolaefolia, S. repens, S. sieboldiana, S. smithiana, Lariz decidua, L. occidentalis,* and *L. sibirica* in Europe and Japan.

Melampsora larici-epitea Kleb. Leaf rust on *Salix* spp. (33 species listed) and *Larix decidua* in Siberia, India, Ceylon, and Europe.

Melampsora larici-pentandrae Kleb. Yellow to brown leaf rust on *S. amygdalina, S. fragilis, S. humboldtiana, S. jaspidea, S. pentandra, S. purpurea, Lariz decidua,* and *L. sibirica* in Uruguay and Europe.

Melampsora larici-urbaniana Mat. Leaf rust on *S. urbaniana* and *Lariz* sp. in Japan.

Melampsora microsora Diet. Yellow to brown rust pustules on leaves of *S. nipponica* in Japan.

Melampsora repentis Plowr. See Orchidaceae.

Melampsora reticulatae Blytt. Leaf rust on *S. reticulata* and *Saxifraga aizoides* in Sweden, Norway, Switzerland, Austria, and Hungary.

Melampsora ribesii-purpureae Kleb. Rust on leaves of *Salix* spp. and *Ribes* spp. in Europe, Japan, and Siberia. Reported from Utah and Colorado on *Ribes.*

Melampsora ribesii-viminalis Kleb. Golden-yellow to brown rust pustules on leaves of *S. viminalis, purpurea, Ribes alpinum, R. aureum, R. nigrum, R. rubrum, R. sanguineum,* and *Grossularia* in Europe.

Melampsora salicis-albae Kleb. Yellow and brown rust pustules on leaves of *Allium cepa, A. porrum, A. schoenoprasum, A. ursinum, A. vinealis,* and on leaves and twigs of *Salix alba* in India and Europe.

Melampsora salicina Lév. Black stromata on leaves of *S. purpurea* and *S. viminalis* in Italy.

Mycosphaerella genuflexa Auersw. On leaves of *S. alba* in Germany.

Mycosphaerella salicicola (Fr.) Fckl. On leaves of *S. caprea, S. nigricans,* and *S. triandra* in France, Italy, and Germany.

Phoma intricans Schwarz. Causes a die-back of twigs, with resulting death of leaves of *S. alba* var. *vitellina-pendula* in Holland.

Phyllohendersonia foliorum (Fckl.) Tass. On *S. caprea* in France, Italy, and Germany.

Phyllosticta iserana Kab. and Bub. Circular to angular brown-gray leaf spots on *S. fragilis* in Bohemia.

Phyllosticta salicicola Thuem. Subcircular gray-white leaf spots on *S. alba* and *S. triandra* in Denmark, Russia, Poland, and France.

Phyllosticta translucens Bub. and Kab. Angular gray-white leaf spots with yellow-brown margins on *S. nigricans* in Austria.

Physalospora miyabeana Fuku. Elliptical whitish-gray stem lesions, 5 to 30 millimeters long surrounded by black borders, on *S. purpurea* in Japan. These lesions may unite and girdle infected branches. Circular to irregular, dark-brown, often concentrically zoned areas occur on the leaves.

Podosphaera schlechtendalii Lév. Powdery mildew on leaves of *S. alba* and *S. viminalis* in France and Russia.

Ramulaspera salicina (Vestergr.) Lind. Violet leaf spots on *S. cinerea* and *S. hastata* in Sweden Finland, and Austria.

Septobasidium acaciae Saw. See Acacia.

Septoria biennioides (Karst.) Berl. and Vogl. On leaves of *S. pendula* in Finland.

Septoria capreae West. Angular gray-white leaf spots with rufous borders on *S. caprea, S. cinerea,* and *S. atrocinerea* in Belgium and Portugal.

Septoria jenisseica Thuem. Circular, then confluent, dull-brown to gray leaf spots on *Salix* sp. in Siberia.

Septoria salicicola (Fr.) Sacc. Circular brown leaf spots on *S. caprea, S. cinerea, S. grandifolia, S. pyrolaefolia,* and *S. viminalis* in Russia, Siberia, Denmark, Sweden, France, Italy, and Austria.

SALOA. See Blumenbachia.

SALPICHROA. Cockseggs. Herbs and shrubs, sometimes under cultivation.

Puccinia pampeana Speg. Rust on leaves and stems of *S. rhomboidea* in Argentina, Brazil, and Uruguay.

Septoria bonariensis Speg. Circular to irregular gray-white leaf spots on *S. rhomboidea* in Argentina.

SALPIGLOSSIS. Flower-garden annuals.

Phytophthora parasitica Dast. See Ricinus.

SALVIA. Sage. Herbs and subshrubs, with some economic and ornamental species.

Aphelenchus olesistus Ritz. Bos. See Begonia.

Ascochyta vicina Sacc. See Rumex.

Cercosporella salviae Pat. Brown leaf spots on *Salvia* sp. in Ecuador.

Coleosporium salviae Diet. Orange rust pustules on leaves of *S. bipinnata* and *S. japonica* in Japan.

Puccinia badia Holw. Leaf rust on *S. albicans* and *S. chrysantha* in Mexico.

Puccinia bithynica P. Magn. Leaf rust on *S. bithynica, S. grandiflora,* and *S. pomifera* in Russia and Crete.

Puccinia conspersa Diet. Brown rust pustules on small yellow sunken leaf spots on *Salvia* sp. in Brazil.

Puccinia delavayana Pat. and Har. Black rust sori on leaves of *Salvia* sp. in China.

Puccinia delicatula (Arth.) Sacc. and Trott. Leaf rust on *S. cinnabarina, S. elegans, S. holwayi,* and *S. pulchella* in Mexico and Guatemala.

Puccinia diutinum Mains. and Holw. Brown rust pustules on leaves of *S. chrysantha, S. pittieri,* and *S. scordoniaefolia* in Mexico and Costa Rica.

Puccinia filiola Mains. and Holw. Leaf rust on *S. involucrata* and *S. pulchella* in Guatemala.

Puccinia gentilis Arth. Cinnamon-brown to dark-brown rust pustules on leaves of *S. alamosana* in Mexico

Puccinia gilliesii Speg. Brown rust pustules on leaf blades and petioles of *S. gilliesii* in Argentina.

Puccinia griseola Lagh. Leaf rust on *Salvia* sp. in Ecuador.

Puccinia impedita Mains. and Holw. Leaf rust on *S. hypioides, S. occidentalis,* and *S. tiliaefolia* in Guatemala, Costa Rica, and Trinidad.

Puccinia infrequens Holw. Brown rust pustules on leaves of *S. cinnabarina* in Mexico and Guatemala.

Puccinia mitrata Syd. Dark-brown powdery rust pustules on leaves of *S. fluviatilis, S. mexicana, S. polystachya, S. purpurea, S. sessiliflora,* and *S. tiliaefolia* in Mexico and Guatemala.

Puccinia nigrescens Kirchn. Brown to black rust pustules on elongated sunken spots on leaves and petioles of *S. judaica, S. verticillata,* and *S. viryata* in Europe and Palestine.

Puccinia nipponica Diet. Leaf rust on *S. nipponica* in Japan.

Puccinia nevadensis Syd. Leaf rust on *S. lavandulaefolia* in Spain.

Puccinia nivea Holw. Brown rust pustules on leaves of *S. purpurea* in Mexico.

Puccinia paramensis Mayor. Leaf rust on *S. cernua* in Colombia.

SALVIA—Continued.

Puccinia prospera Arth. Brown rust pustules on leaves of *S. microphylla* in Mexico.

Puccinia roestelliformis Lagh. Yellow and brown rust pustules on leaves of *Salvia* sp. in Ecuador.

Puccinia salviae Ung. Brown leaf rust on *S. glutinosa* and *S. lavandulaefolia* in China and Europe.

Puccinia soledadensis Mayor. Leaf rust on *S. pauciserrata* in Colombia.

Septoria salviae Pass. Dull-brown leaf spots on *S. horminum*, *S. pratensis*, *S. sylvestris*, and *S. sclarea* in Russia, Italy, Dalmatia, and France.

Ustilago betonica Beck. Anther smut of *Betonica* spp. and *Salvia* sp. in Europe.

SAMBUCUS. ELDER. Shrubs grown for their foliage, flowers, and black and red berries.

Ascochyta fernandi Bub and Malk. Circular to irregular gray-brown leaf spots on *S. ebulus* in Bulgaria.

Ascochyta sambucella Pass. On branches of *S. ebulus*, *S. nigra*, and *S. racemosa* in Germany and Italy.

Ascochytella sambuci (Sacc.) Tass. On leaves of *S. nigra* in Italy and France.

Cercospora ticinensis Cav. Gray-brown leaf spots on *S. nigra* in Italy.

Exosporium depazeoides Desm. On leaves of *S. nigra* in France.

Gloeosporium ebuli Allesch. Subcircular to irregular, then confluent, brown leaf spots on *S. ebulus* in Germany.

Helicobasidium mompa Tan. See Morus.

Marsonia sambuci E. Rostr. Large brown leaf spots on *S. nigra* in Europe.

Mycosphaerella ebulina Petr. On leaves of *S. ebulus* in Bohemia and Austria.

Phyllosticta ebuli Fckl. On leaves of *S. ebulus* and *S racemosa* in France, Italy, Hungary, and Germany.

Phyllosticta sambucina Allesch. On leaves of *S. nigra* in Switzerland.

Septoria ebuli Desm. and Rob. Small subcircular pale-rufous to purple, often confluent, leaf spots on *S. ebulus* and *S. nigra* in Europe.

SANCHEZIA. Strong, erect herbs or half shrubby plants grown for their flowers and foliage.

Pyrenochaete vexans Syd. Large confluent brown leaf spots on *S. nobilis* in Brazil.

SANGUISORBA. See also Poterium. BURNET. Perennial herbs grown in hardy borders and as salad plants.

Marsonia sennensis Gz. Frag. On leaves of *S. officinalis* in Spain.

Ovularia bulbigera (Fckl.) Sacc. Ochraceous leaf spots with dark-purple margins on *S. minor* in Alaska, Switzerland, and Germany

Peronospora sanguisorbae Gäum. Downy mildew on leaves of *S. officinalis* in central Europe.

Phragmidium carbonarium (Schlechtd.) Wint. Golden and black rust pustules on leaves of *S. canadensis*, *S. carnea*, *S officinalis*, and *S. tenuifolia* in Japan, Siberia, and Europe.

Phragmidium minor (Arth.) Syd. Dark-brown rust pustules on leaf blades and petioles of *S. latifolia* in Alaska.

Phragmidium sanguisorbae (DC.) Schroet. See Poterium.

SANSEVIERIA. BOWSTRING HEMP. Herbaceous perennials cultivated as ornamentals and sometimes as fiber plants.

Chaetophoma sansevierae Tass. On leaves of *S. zeylanica* in Italy.

Leptosphaeria baldratiana Bacc. Small brown spots on leaves of *S. ehrenbergia* in Abyssinia.

Phyllachora pappiana Bacc. Small subcircular black stromata on leaves of *S. ehrenbergia* in Abyssinia.

Septogloeum concentricum Syd. On leaves of *S. guineensis* in Abyssinia and central Africa.

SANTALUM. SANDALWOOD. Evergreen trees with aromatic properties.

Spik disease. This disease, characterized by die-back, unthriftiness, and final death of infected trees, is a serious disease of sandalwood (*S. album*) in India. The cause is unknown, but the disease is apparently one of the infectious mosaics.

SANTOLINA. LAVENDER COTTON. Shrubs and herbs, sometimes cultivated.

Puccinia chamaecyparissi Trott. Rust on leaves and stems of *S. chamaecyparissus* in Italy.

SAPINDUS. SOAPBERRY. Trees and shrubs cultivated for ornament and economic value.

Mycosphaerella reyesii Syd. On leaves of *S. saponaria* in the Philippines.

Phyllosticta patouillardi Sacc. and D. Sacc. Circular to angular, bright-brown leaf spots with dull-brown margins on *Sapindus* sp. in Algeria.

Phyllosticta raimundi Sacc. Leaf spot on *Sapindus* sp. in the Philippines.

Phyllosticta sapindi P. Henn. Circular pale-brown leaf spots on *S. saponaria* in Brazil.

Uredo cristata Speg. Leaf rust on *S. bifoliatus* and *Sapindus* sp. in Ceylon and Argentina.

SAPIUM. CHINESE TALLOW TREE. Tropical trees and shrubs cultivated for their economic products.

Cercospora micromera Syd. On leaves of *S. sebiferum* in China.

Cercospora sapiicola Speg. Angular brown leaf spots on *S. aucuparium* and *S. mannianum* in Argentina and Uganda.

Exosporium lateritium Syd. On leaves of *S. abyssinicum* in Tanganyika.

Helminthosporium sapii Miy. On leaves of *S. sebiferum* in China.

Uromyces cisneroanus Speg. Dark-brown to black rust pustules on leaves of *S. aucuparium*, *S. biglandulosum*, and *S. salicifolium* in Argentina and Paraguay.

Uromyces globosus Diet. and Holw. Powdery black rust pustules on leaves of *S. biglandulosum* in Mexico.

Uromyces vestitus Diet. Brown rust pustules on leaves and stems of *Sapium* sp. in Brazil.

SAPONARIA. SOAPWORT. Hardy, often coarse, annual or perennial, erect or decumbent herbs, sometimes cultivated.

Ascochyta dianthi Berk. See Dianthus.

Ascochyta saponariae Fckl. Small dull-brown leaf spots on *S. officinalis* in Germany.

Cylindrosporium saponariae Roum. Large circular, often confluent, gray leaf spots on *S. officinalis* in France.

Phyllosticta saponariae (Fckl.) Sacc. On leaves of *S. officinalis* in Belgium, Italy, and Germany.

Septoria saponariae (DC.) Sav. and Becc. Pale-brown circular to irregular leaf spots on *S. officinalis* and *Silene latifolia* in Bulgaria, Yugoslavia, Great Britain, Denmark, and Belgium.

Uromyces gypsophilae Cke. See Gypsophila.

SARCANTHUS. See Orchidaceae.

SASA. See Bambuseae.

SATYRIUM. See Orchidaceae.

SAURURUS. LIZARD'S-TAIL. Perennial marsh herb.

Uromyces saururi P. Henn. Leaf rust of *S. loureiri* in Japan.

SAUSSUREA. Annual, biennial, or perennial herbs, sometimes planted in gardens.

Aecidium saussureae-affinis Diet. Leaf rust on *S. affinis* in Japan.

Bremia saussureae Saw. Downy mildew on pale-yellow polygonal leaf spots on *S. carthamoides* in Formosa.

SAUSSUREA—Continued.
Coleosporium saussureae Thuem. Golden-yellow rust pustules on leaves of *S. grandifolia*, *S. japonica*, *S. lutifolia*, *S. maximowiczii*, *S. triangulata* and *S. ussuriensis* in Siberia, Japan, and China.
Erysiphe taurica Lév. See Althaea.
Phyllosticta saussureae Thuem. On leaves of *S. salicifolia* in Siberia.
Puccinia rupestri Juel. Rust on leaves of *S. alpina* and *Carex rupestris* in Sweden and Norway.
Puccinia saussurea Thuem. Powdery dark-brown rust pustules on leaves of *S. glomerata* in Siberia and India.
Puccinia saussureae-alpinae Lindr. Brown rust sori on leaves of *S. alpina* in Finland.
Puccinia vaginatae Juel. Brown to black rust pustules on leaves of *S. alpina*, *Carex panicea*, and *C. vaginata* in Sweden.
Puccinia vomica Thuem. Leaf rust on *S. tanakae* and *Saussurea* sp. in Siberia.
Ramularia saussureae Thuem. Subcircular gray leaf spots on *S. glomerata* in Siberia.
Septoria saussureae Thuem. Circular gray leaf spots with dull-brown margins on *S. glomerata* in Siberia and China.
Thecaphora trailii Cke. Powdery purple-brown smut sori in flowers of *S. alpina* and *Carduus heterophyllus* in Scotland.
Uromyces saussureae Karst. Leaf rust on *S. circa*, *S. lourciri*, *S. nipponica*, and *Saussurea* sp. in Japan and Siberia.

SAXIFRAGA. Saxifrage. Perennial herbs cultivated in gardens and rockeries.
Caeoma cernuae Th. Lind. Yellow leaf rust on *S. cernua* in Lapland.
Cylindrosporium microspermum (Speg.) Sacc. Indefinite circular leaf spots on *S. rotundifolia* in Italy.
Diplochorella stromatica (Rehm.) Theiss. and Syd. On leaves of *Saxifraga* sp. in Austria.
Entyloma schinzianum (P. Magn.) Bub. Leaf smut on *S. heuffeliana* and *S. rotundifolia* in Asia Minor, Switzerland, Yugoslavia, Austria, and Hungary.
Leptosphaeria monotis Rehm. On stems of *Saxifraga* sp. in Austria.
Melampsora hireuli Lindr. Rust on stems and leaves of *S. hirculus* in Russia, Finland, and Switzerland.
Melampsora reticulata Blytt. See Salix.
Melampsora vernalis Niessl. Golden, then dark-brown, rust pustules on leaves of *S. granulata* in Europe.
Peronospora minima G. W. Wils. Downy mildew on leaves of *S. cernua* in Norway.
Peronospora saxifragae Bub. Downy mildew on leaves of *S. granulata* in Bohemia and Germany.
Phyllosticta groenlandica Allesch. On leaves of *S. aizoides*, *S. oppositifolia*, and *S. stellaris* in Greenland.
Phyllosticta saxifragae P. Brun. Circular gray-white leaf spots with brown margins on *S. geum* in France.
Phyllosticta saxifragicola P. Brun. Circular leaf spots with brown margins on *S. cordifolia* in France.
Puccinia fischeri Crut. and Mayor. Leaf rust on *S. biflora* in Switzerland.
Puccinia laurentiana Trel. Leaf rust on *S. neglecta stolonifera* in Alaska.
Puccinia luteri Syd. Powdery brown leaf rust on *S. mutata* in Austria.
Puccinia jueliana Diet. Dark-brown rust pustules on leaves of *S. aizoides* and *S. oppositifolia* in Norway and Austria.
Puccinia pazschkei Diet. Powdery dull-brown rust sori on leaves of *S. aizoon*, *S. elatior*, *S. longifolia*, and *S. mutata* in Switzerland and Austria.
Puccinia saxifragae Schlecht. Powdery brown leaf rust on *Saxifraga* spp. in Japan and Europe. Also reported from Oregon.
Puccinia saxifragae-ciliatae Barcl. Brown rust pustules on circular brown sunken leaf spots on *S. ciliata* and *S. lingulata* in India.
Puccinia saxifragae-micranthae Barcl. Brown rust sori on leaves of *S. micrantha* in India.
Puccinia saxifragae-tricuspidatae P. Henn. Yellow-brown leaf rust on *S. tricuspidata* in Greenland.
Ramularia saxifragae Syd. Large brown leaf spots on *S. granulata* in Europe.
Ramularia sennensis Gz. Frag. On leaves of *S. rotundifolia* in Spain.
Septoria saxifragae Pass. and forma **arctica** Allesch. On leaves of *S. aizoides*, *S. hirculus*, and *S. rotundifolia* in Greenland and Italy.
Synchytrium rubrocinctum P. Magn. Small galls on leaves of *S. granulata* in Germany.
Synchytrium groenlandicum Allesch. On leaves of *S. cernua* in Greenland.

SCABIOSA. Annual or perennial herbs, cultivated in gardens for their showy flowers. Sometimes called mourning bride.
Aphelenchus olesistus Ritz. Bos. See Begonia.
Cercospora scabiosicola Rangel. On leaves of *S. atropurpurea* in Brazil.
Peronospora knautiae Fckl. Downy mildew on leaves of *S. columbaria*, *Knautia arvensis*, and *K. silvatica* in Switzerland, France, Scandinavia, Austria, and Germany.
Peronospora violacea Berk. See Dipsacus.
Ramularia bosniaca Bub. Small circular to oblong, often confluent, dark-violet, then gray-white, leaf spots on *S. columbaria* in Yugoslavia.
Ramularia knautiae (Mas.) Bub. On leaves of *S. columbaria* and *S. lucida* in Dalmatia and Austria.
Ramularia scabiosa Lind. (*R. scabiosae* Jaap.) Subcircular leaf spots on *S. columbaria* and *S. lucida* in Denmark and Switzerland. Jaap has also described what is apparently the same species under the same name.
Septoria scabiosicola Desm. Circular purple-brown leaf spots on *S. arvensis*, *S. atropurpurea*, *S. balansae*, *S. columbaria*, *S. kladnikiana*, *S. ochroleuca*, and *S. succisa* in Europe.
Stigmatea scabiosae Lebed. On leaves of *S. ucranica* in Russia.
Ustilago intermedia Schroet. A smut destroying flowers of *S. arvensis* and *S. columbaria* in Denmark, Belgium, Great Britain, and Germany.
Ustilago scabiosa (Sow.) Wint. A smut forming powdery spore masses in anthers of *S. columbaria* and *Knautia arvensis* in Europe.

SCAEVOLA. Herbs or shrubs, sometimes cultivated.
Phyllosticta scaevolae E. and E. Circular dull-brown leaf spots on *S. chamissoniana* in Hawaii.
Ramularia scaevolae Rac. Circular pale-brown leaf spots on *S. koenigii* in Java.
Uromyces pucciniodes Berk. Rust on leaves and flower stalks of *Scaevola* sp. and *Selliera radicans* in Queensland.

SCANDIX. Umbelliferous annual herbs cultivated for their flowers and foliage.
Uredo petroselini DC. Leaf rust on *S. pecten-veneris* in France and Great Britian.

SCHINUS. Pepper tree. Dioecious, resinous, ornamental trees.
Cercospora schini Syd. On leaves of *S. dependens* in Argentina.
Meliola ludibunda Speg. Black fungus patches on leaves of *S. dependens* in Brazil.
Phyllosticta schini Thuem. Large irregular ochraceous to dull-brown leaf spots on *S. latifolius* and *S. molle* in Italy and Portugal.
Septoria schini Tassi. Ashen leaf spots with black borders on *S. latifolius* in Italy.

SCHIZANTHUS. BUTTERFLY FLOWER. Erect, half hardy, annual herbs grown for their showy flowers.

Cronartium flaccidum (Alb. and Schw.) Wint. See Paeonia.

SCHIZOCODON. Fringe bell. Glabrous perennial herbs.

Puccinia schizocodonis Pat. Brown to black rust pustules on leaves of *S. soldanelloides* in Japan.

SCHIZOLOBIUM. Tall leguminous trees.

Phyllachora schizolobiicola. P. Henn. Black stromata on leaves of *S. parahybum* (*S. excelsum*) in Brazil.

SCHIZONOTUS. See Sorbaria.

SCHIZOPHRAGMA. Ornamental vines grown for their handsome green foliage and showy clusters of white flowers.

Mycosphaerella exigua Syd. On leaves of *S. hydrangeoides* in Japan.

SCHIZOSTACHYUM. See Bambuseae.

SCILLA. SQUILL. Perennial, bulbous plants with blue, rose, or white flowers. (Including *Endymion*)

Aecidium doldgei Syd. Leaf rust on *S. saturata* in the Union of South Africa.

Aecidium scillae Fckl. Yellow rust pustules on leaves of *S. bifolia* in England, France, and Switzerland. Said to be distinct from *Uromyces scillarum*, a common rust on Scillas.

Aecidium scillinum Dur. and Mont. This rust, reported on leaves of *S. autumnalis*, is probably only one stage of one of the *Scilla* rusts recorded elsewhere.

Physoderma debeauxii (Bub.) Syd. Ellipsoidal spots on the leaves of *S. maritima* (*Urginea scilla*) in Italy. The leaves are injured and bulb development is prevented.

Puccinia ficalhoana Lagh. Elongated black rust pustules on both leaf surfaces of *S. companulata* (*Endymion companulatum*) in Portugal.

Puccinia liliacearum Duby. See Ornithogalum.

Puccinia rossiana (Sacc.) Lagh. Rufous-brown rust pustules on both leaf surfaces of *S. bifolia* and *S. cernua* in Switzerland, Italy, Russia, and Hungary.

Sclerotinia tuliparum (Wakk.) Rehm. See Tulipa.

Septoria scillae West. See Muscari.

Urocystis colchici (Schlecht.) Rab. See Colchicum.

Uromyces algeriensis Syd. Circular to irregular cinnamon-colored rust pustules on both leaf surfaces of *S. obtusifolia* and other species of *Scilla* in Tunis and Algeria.

Uromyces circinalis Kalchbr. and Cke. This rust produces broad spots from 2 to 8 centimeters in diameter in which powdery, cinnamon-colored pustules form. On both leaf surfaces of *S. prasina* in the Union of South Africa.

Uromyces scillarum (Grev.) Wint. See Hyacinthus.

Ustilago vaillantii Tul. See Hyacinthus.

SCOLYMUS. Spanish oyster plant. Fleshy, edible roots.

Phyllosticta scolymi Pat. Angular ashen leaf spots on *S. hispanicus* in Tunis.

Puccinia scolymi Syd. Powdery brown rust sori on leaves of *S. grandiflorus* and *S. hispanicus* in north Africa, Syria, Spain, and Sicily.

Ramularia cynarae Sacc. Gray spots with brown margins on leaves of *S. hispanicus* in Chile, France, and French North Africa.

Ustilago scolymi Roum. Powdery black masses of smut spores in flowers and receptacles of *S. grandiflorus* and *S. hispanicus* in Algeria and Tunis.

SCOPOLIA. SCOPOLINA. Ag. Erect, hardy, perennial herbs cultivated for their lurid-purple flowers.

Aecidium pascheri Bub. Rust on large round gray leaf spots on *S. japonica* in Japan.

Ramularia scopaliae Vos. Irregular brown spots on leaves of *S. atropoides* in Austria.

SCOPOLINA. See Scopolia.

SCORPIURUS. Hardy stemless or decumbent herbs.

Cercospora scorpiuri Thuem. Subcircular reddish-gray leaf spots with dull-brown margins on *S. muricata* in Portugal.

SCORZONERA. SERPENT ROOT. BLACK SALSIFY. Herbs cultivated for the fleshy, edible roots.

Ascochyta scorzonerae Rostr. Irregular brown-leaf spots on *S. hispanica* in Denmark.

Cercosporella scorzonerae v. Hoeh. Oblong pale-brown leaf spots with broad purple margins on *S. humilis* in Austria.

Phyllosticta scorzonerae Pass. Small brown leaf spots on *S. humilis* in France and Bohemia.

Puccinia angustifolia McAlp. Yellow and dark-brown rust pustules on leaves of *S. angustifolia* in Australia.

Puccinia scorzonerae (Schum.) Jacky. Golden to brown rust pustules on leaves of *S. austriaca*, *S. hispanica*, *S. humilis*, *S. purpurea*, and *S. rosea* in China and Europe.

Ramularia scorzonerae Jaap. Circular to elongate dark-brown leaf spots on *S. aristata* and *S. humilis* in Austria and Spain.

Sporidesmium scorzonerae Aderh. Attacks stems and leaves of *Scorzonera* sp. in Germany.

Ustilago receptaculorum Tul. A smut destroying the flowers of *Scorzonera* sp. in France.

Ustilago scorzonerae (Alb. and Schw.) Schroet. Dark-violet smut spores in flowers of *S. aristata*, *S. hispanica*, *S. humilis*, and *S. purpurea* in Europe.

SCROPHULARIA. FIGWORT. Herbs, occasionally cultivated.

Ascochyta scrophulariae Kab. and Bub. Round to irregular zoned brown leaf spots on *S. nodosa* in Bulgaria and Bohemia.

Phyllosticta ehrhartii Sacc. Gray-white sinuous leaf spots on *S. aquatica* and *S. ehrharti* in Portugal and Italy.

Phyllosticta scrophulariae Sacc. Ochraceous leaf spots on *S. nodosa* in Denmark, Russia, and Italy.

Phyllosticta scrophulariae-bosniacae Bub. Subcircular to ellipsoid yellow-brown leaf spots on *S. bosniaca* in Yugoslavia.

Phyllosticta scrophularinea Sacc. Small angular white leaf spots on *S. kakudensis* and *S. nodosa* in Japan and Italy.

Ramularia nicolai Bub. (*Ovularia carneola* Sacc.). Angular to irregular leaf spots on *S. bosniaca*, *S. ehrharti*, *S. nodosa*, and *S. vernalis* in Yugoslavia, Switzerland, Spain, Denmark, and Austria.

Ramularia scrophulariae Fautr. and Roum. Purple leaf spots on *S. aquatica* and *S. nodosa* in France and Bulgaria.

Septoria rohlenae Bub. Angular, often confluent, gray leaf spots with brown margins on *S. scopolii* in Yugoslavia and Albania.

Uromyces scrophulariae (DC.) Fckl. Yellow and brown rust pustules on leaf blades, petioles, and stems of *S. aquatica*, *S. bosniaca*, *S. ebulifolia*, *S. ehrharti*, *S. nodosa*, and *S. scorodonia* in Europe.

SCUTELLARIA. SKULLCAP. Annual and perennial herbs.

Aecidium scutellariae Syd. Leaf rust on *S. angulosa* and *S. repens* in India.

Aecidium scutellariae-indicae Diet. Leaf rust on *S. indica* in Japan.

Erysiphe taurica Lév. See Althaea.

SEBASTIANA. Tropical shrubs.
Exoascus sebastianae Sadeb. Fruiting on lower surfaces and often deforming leaves of *S. brasiliensis* in Brazil.
Phyllachora subtropica Speg. Black stromata on leaves of *Sebastiana* sp. in Brazil and Paraguay.
Puccinia sebastianae Syd. Brown rust pustules on leaves of *S. klotzschiana* in Brazil.
Uredo sebastianae Wint. Leaf rust on *S. microstachys* in Brazil.

SECALE. Rye.
Acremoniella occulta Cav. Brownish-yellow flakes on culms of *Secale* and *Triticum* in Great Britain and Italy.
Bacillus cerealinum Gentner. See Hordeum.
Dilophia graminis (Fckl.) Sacc. See Triticum.
Fusarium nivale (Fr.) Sor. (*Calonectria graminicola* B. and B.) Attacks the culms of *S. cereale*, *Hordeum*, *Lolium*, and *Triticum* in Europe, causing the so-called "snow disease."
Gloeosporium secalis Rostr. Gray-white leaf spots on *S. cereale* in Denmark.
Leptosphaeria eustoma (Fr.) Sacc. On culms and peduncles of *S. cereale*, *Holcus sorghum*, and *Phragmites* sp. in Europe.
Leptosphaeria herpotrichoides DeN. See Triticum.
Mycosphaerella basicola Frank. See Hordeum.
Ophiobolus cariceti (B. and Br.) Sacc. See Triticum.
Ophiobolus herpotrichoides (Fr.) Sacc. See Triticum.
Sclerotinia temulenta Prill. and Delacr. (*Hymenoscypha temulenta* P. and D.) Forms sclerotia in place of grain in *S. cereale* in France. Flour made from grain contaminated with these sclerotia is poisonous.
Septocylindrium secales Oud. Pale-brown leaf spots on *S. cereale* in Holland.
Sphaeroderma damnosum Sacc. See Triticum.
Tilletia secalis (Cda.) Kueh. Stinking smut of rye (*S. cereale*) in Europe. The smut sori take the place of the grain and are composed of a dense black mass of spores. Reported from Washington and New York.
Tylenchus dipsaci Kuehn. See Narcissus.
Tylenchus tritici Bast. See Triticum.

SECHIUM. CHAYOTA Ag. Chayote. Cucurbitaceous tropical vines grown for their edible single-seeded fruit.
Cercospora sechiae Stevenson. Yellow subcircular, then irregular and indefinite, areas on leaves of *S. edule* (*C. edulis*) in Porto Rico and Cuba.
Helminthosporium sechiicolum Stevenson. Small angular brown spots on leaves of *S. edule* (*C. edulis*) in Porto Rico.
Phyllosticta sechii Young. Irregular, then confluent, yellowish-white to gray-white leaf spots on *S. edule* (*C. edulis*) in Porto Rico.

SECURINEGA. Shrubs with bright-green foliage.
Nothoravenelia japonica Diet. Brown rust pustules on leaves of *S. flueggeoides* and *Flueggea japonica* in Japan and China.

SEDUM. Stonecrop. Hardy, perennial, succulent herbs grown in rockeries.
Aecidium koreaënse P. Henn. Leaf rust on *S. maximowiczii* in Chosen.
Aecidium sedi-aizoontis Tranzsch. Leaf rust on *S. aizoon* in Russia.
Ascochyta sedi Allesch. On stems of *S. affine* and *S. maximum* in Austria and Germany.
Ascochyta telephii Vestergr. Circular to irregular brown leaf spots with dark-purple margins on *S. telephium* in Sweden.
Endophyllum sedi (DC.) Lév. Brown leaf rust on *S. acre*, *S. nicaeense* (*S. altissimum*), *S. boloniense*, *S. maximum*, *S. pruinatum*, *S. purpureum*, *S. reflexum*, and *S. sexangulare* in Europe.
Euryachora thoracella (C. Rustr.) Schroet. Shiny black stromata, circular on the leaves and elongate on the stems of *S. fabaria*, *S. maximum*, *S. purpureum*, and *S. telephium* in Italy, Switzerland, Austria, Hungary, and Germany.
Helminthosporium rhopaloides Fres. and f. **sedi** P. Brun. On stems of *S. fabaria* in France.
Mycosphaerella sedi Jacz. On leaves of *S. telephium* in Russia.
Phyllosticta aizoi Cke. Small subcircular brown leaf spots on *S. aizoon* in Great Britain.
Puccinia australis Koern. Leaf rust on *S. boloniense*, *S. cepaea*, *S. mite*, *S. reflexum*, and *Molinia serotina* in Dalmatia, Italy, and Austria.
Puccinia benkei Kusano. Leaf rust on *S. alboroseum* and *S. telephium* in Japan.
Puccinia longissima Schroet. Leaf rust on *S. acre*, *S. boloniense*, *S. maximum*, *S. purpurascens*, *S. reflexum*, and *Koeleria* spp. in Sweden, Austria, Hungary, and Germany.
Puccinia sedi Koern. Dark-brown rust pustules on leaves and stems of *S. elegans* and *S. glanduliferum* in Italy, France, Switzerland, Belgium, and Germany.

SELAGINELLA. Club moss.
Helminthosporium filicicola P. Henn. See Lygodium
Phyllosticta helvetica Sacc. On leaves of *S. helvetica* in Dalmatia.
Phyllosticta selaginellae Sacc. Indefinite pale-brown leaf spots on *S. helvetica* in Italy.
Sclerotium selaginellae Peyl. On leaves and stems of *Selaginella* sp. in Bohemia.
Synchytrium selaginellae Sorok. Doubtful species on *Selaginella* sp. in Russia.

SELINUM. Umbelliferous branched perennial herbs.
Aecidium selini Lindr. Yellow leaf rust on *S. lineare* in Finland.
Physoderma vagans Schroet. See Ranunculus.
Puccinia apii Desm. See Apium.

SEMELE. Climbing butcher's-broom. Ornamental shrubs.
Ascochyta semeles Sacc. Gray-white oblong leaf spots with rufous margins on *S. androgyna* in Italy.
Phyllosticta semeles Ohl. Numerous white leaf spots with red borders on *S. androgyna* in Russia. Possibly only a stage of the preceding species.

SEMPERVIVUM. Houseleek. Perennial stemless herbs or subshrubs with thick fleshy leaves.
Ascochyta sempervivi Fautr. On leaves and stems of *S. tectorum* in Denmark and France.
Endophyllum sempervivi (A. and S.) De By. Rust on leaves of *Sempervivum* spp. (about 20 species so far reported) in Europe. Introduced into New York City, where it has done considerable damage in public plantings.

SENECIO. Groundsel. Composites with yellow flower heads.
Aecidium dubiosum Syd. Leaf rust on *S. nikanioides* in the Union of South Africa.
Aecidium halophilum Speg. Leaf rust on *S. alicornis* in Chile.
Aecidium hualtatinum Speg. Yellow leaf rust on *S. gilliesii*, *S. glabrum*, *S. halorragis*, *S. hieracioides*, *S. hualtata*, and *S. thermarum* in Chile and Argentina.
Aecidium kilimandscharicum P. Henn. Yellow leaf rust on *S. multicorymbosus* in central Africa.
Aecidium margueryanum Maire. Rust on leaves of *S. aquaticus* in France.
Aecidium permultum Syd. Leaf rust on *S. inornatus* in the Union of South Africa.
Aecidium senecionis-stenocephali Diet. Leaf rust on *S. stenocephalus* in Japan.

SENECIO—Continued.

Aecidium serrae Syd. Leaf rust on *S. serra* in the Union of South Africa.
Ascochyta senecionis Fckl. On leaves of *S. sarracenicus* in Germany.
Baeodromus holwayi Arth. Leaf rust on *S. cinerarioides* in Mexico.
Baeodromus senecionis Syd. Leaf rust on *Senecio* sp. in Ecuador.
Bremia tulasnei (Hoffm.) Syd. Downy mildew on leaves of *S. vulgaris* in Germany.
Cercospora jacquiniana Thuem. Irregular ochraceous leaf spots on *S. jacquinianus* in Germany.
Coleosporium senecionis Fr. Yellow rust pustules on leaves of *Senecio* spp. and *Cineraria* spp. in Europe, Brazil, Uruguay, Chile, Siberia, Manchuria, Japan, and the Canary Islands. Collected once in Rhode Island. The aecial state occurs on needles of *Pinus austriaca, P. insignis, P. echinata, P. halepensis P. mughus, P. montana, P. pinaster,* and *P. sylvestris.*
Cylindrosporium eleonorae-reginae Bub. and Malk. On leaves of *S. transsilvanicus* in Bulgaria.
Peronospora senecionis Fckl. Downy mildew on leaves of *S. cordatus* in Germany.
Phyllachora nidulans Pat. Dull-black stromata on leaves of *Senecio* sp. in Ecuador.
Phyllosticta albo-brunnea Bub. and Wrobl. On leaves of *S. umbrosus* in Russia and Poland.
Phyllosticta hualtatae Speg. Subcircular gray-white leaf spots on *S. hualtata* in Argentina.
Phyllosticta jacobaeae Sacc. Indefinite ochraceous leaf spots on *S. jacobaea* in Italy.
Phylosticta senecionis-cordati Allesch. Dull-yellow leaf spots on *S. cordatus* and *S. fuchsii* in Bohemia, Silesia, and Germany.
Puccinia glomerata Grev. Brown rust pustules on brown leaf spots on *S. jacobaea* in Great Britain and Belgium.
Puccinia ligericae Syd. Leaf rust on *S. viscosus* and *Carex ligerica* in Germany.
Puccinia oedipus Cke. Yellow-brown to black rust pustules on leaves of *S. pandurifolius* in the Union of South Africa.
Puccinia schoeleriana Plowr. and Magn. Leaf rust on *S. jacobaea* and *Carex* spp. in Europe.
Puccinia senecionicola Arth. Brown rust sori on leaves of *Cacalia amplifolia, C. ampullacea, C. calotricha, C. pringlei, C. obtusiloba, C. sinuata, Senecio angulifolius, S. petasitoides, S. sinuatus,* and *S. warszewiczii* in Mexico and Guatemala.
Puccinia senecionis Lib. Brown to black rust pustules on leaves of *Senecio* spp. in central Europe and Australia.
Puccinia senecionis-acutiformis Hasl. and Mayor. Leaf rust on *Senecio* spp. and *Carex* spp. in Switzerland.
Puccinia senecionis-ochrocarpi Bacc. Leaf rust on *S. ochrocarpus* in Abyssinia.
Puccinia silvatica Schroet. See Taraxacum.
Puccinia tasmanica Diet. Black rust pustules on leaves and stems of *S. vulgaris* in Tasmania.
Puccinia uralensis Tranzs. Leaf rust on *S. fuchsii, S. nemorensis* and *S. scandens* in Ceylon, Yugoslavia, Russia, and Hungary.
Ramularia chlorina Bres. On leaves of *S. fuchsii* in Germany.
Ramularia coleosporii Sacc. See Campanula.
Ramularia pruinosa Speg. Small circular ochraceous leaf spots which finally involve the entire leaf area of *S. jacobaea* in Great Britain and Italy.
Ramularia senecionis (B. and Br.) Sacc. On leaves of *S. carniolicus, S. jacobaea, S. nebrodensis, S. (Cineraria) palustris,* and *S. subalpinus* in Great Britain, the Balkans, and Austria. Reported from Colorado.
Septoria anaxaea Sacc. Ochraceous leaf spots on *S. praealtus* in Italy.
Septoria martiniae Cke. Gray confluent leaf spots on *S. bedfordii* in Victoria.
Septoria selloi Speg. Small circular gray-white leaf spots on *S. selloi* in Argentina.
Septoria senecionis West. Circular to irregular gray-black leaf spots with white centers on *Senecio* spp. in Siberia and Europe. Reported from California.
Uromyces ameghinoi Speg. Leaf rust on *S. laevicaulis* in Patagonia.
Uromyces araucanus Diet. and Neg. Brown leaf rust on circular spots on *S. otites* in Chile.
Uromyces kurtzii P. Henn. Rust deforming leaves and stems of *S. salsus* in Argentina.
Uromyces psamathonophilus Speg. A rust deforming leaves, branches, and inflorescences of *Senecio* sp. in Argentina.
Uromyces senecionicola Arth. Brown leaf rust on *S. roldana* in Mexico and Guatemala.

SERJANIA. Climbing or twining tropical shrubs.

Aecidium serjaniae P. Henn. Ochraceous rust pustules on yellow leaf spots on *S. fulta* and *Serjania* sp. in Brazil and Argentina.
Dothidella serjaniae P. Henn. Brown stromata on stems of *Serjania* sp. in Brazil.
Phyllachora duplex Rehm. Shiny black stromata on brown spots on leaf blades and petioles of *S. caracasana* in Brazil and Argentina.
Phyllachora intermedia Speg. Small brown galls on leaves and stems of *S. glabrata* in Brazil. The fungus is said to be more properly a *Valsaria.*
Phyllachora subrepens Speg. Black stromata on leaves of *Serjania* sp. in Paraguay and Brazil.
Physalospora serjaniae Rehm. Circular red to dull-brown leaf spots on *Serjania* sp. in Brazil.

SERRATULA. Thistlelike perennial herbs with purple or violet flower heads.

Ovularia serratulae Sacc. Leaf spot on *S. tinctoria* in Spain.
Puccinia heterophyllae Cke. Powdery brown rust pustules on leaves and stem of *S. cerinthefolia* and *S. heterophylla* in Kurdistan and Asia Minor.
Puccinia miurae Syd. Leaf rust on *S. atriplicifolia* in Japan.
Puccinia schirajewskii Tranzsch. Leaf rust on *S. pallida* in India.
Puccinia schroeteriana Kleb. Leaf rust on *S. radiata, S. tinctoria,* and *Carex* spp. in Russia and central Europe.
Puccinia serratulae Thuem. Brown leaf rust on *S. tinctoria* and *Serratula* sp. in Siberia and Russia.
Puccinia serratulae-oligocephalae Syd. Powdery brown to black rust pustules on leaves of *S. oligocephala* in Syria.
Puccinia serratulae-pinnatifidae Gz. Frag. Leaf rust on *S. pinnatifida* in Spain.
Puccinia tinctoricola P. Magn. Leaf rust on *S. centauroides, S. coronata, S. heterophylla, S. sloanei,* and *S. tinctoria* in Siberia and Europe.
Septoria cirsii Niessl. Subcircular brown leaf spots on *S. glauca* and *Cirsium arvense* in Italy.
Septoria tinctoriae Brun. On leaves of *S. tinctoria* in Germany.

SESAMUM. Sesame. Tropical herbs producing oil-bearing seeds.

Ascochyta sp. On *S. orientale* in south Russia.
Bacillus sesami Malkoff. Attacks *S. orientale* (*S. indicum*) in connection with *Pseudomonas sesami* in Bulgaria.
Cercospora sesami A. Zimm. Numerous small light-brown spots with dark-brown margins on leaf blades, petioles, stems, and capsules of *S. orientale* (*S. indicum*) in Porto Rico, Cuba, Brazil, Tanganyika, the Philippines, Ceylon, China, and Japan. Reported from Florida.
Fusarium sp. Causes a serious wilt of *S. orientale* in India. The disease is seed-borne.

SESAMUM—Continued.
Helminthosporium sesami Miy. On leaves of *S. orientale* in China.
Hypochnus cucumeris Frank. See Cucumis.
Phytophthora parasitica Dast. See Ricinus.
Pseudomonas sesami Malkoff. Produces brown to black spots on leaves and stems of *S. orientale* in Bulgaria. Diseased plants turn black and rot.
Rhizoctonia sp. See Vigna.
SESBANIA. Leguminous herbs or shrubs.
Cercospora agatidis Foex. On leaves of *S. grandiflora* in Indo-China.
Cercospora sesbaniae P. Henn. Effuse yellowish leaf spots on *S. grandiflora* in India and the Congo
Uredo fimbriata Speg. Brown leaf rust on *Sesbania* sp. in Brazil.
Uredo sesbaniae P. Henn. Rust pustules on yellow leaf spots on *S. aegyptiaca* and *Sesbania* sp. in India and the Congo.
SESELI. Perennial and biennial herbs.
Puccinia phymatospora Lindr. Brown to black rust pustules on leaves of *S. coloratum* in Italy, France Belgium, and Switzerland.
Septoria desciscens Sacc. On leaves of *S. strictum* in Siberia.
Septoria seseli Höll. On leaves of *S. glaucum* in Hungary.
Uromyces graminis (Niessl.) Diet. Powdery brown to black rust pustules on leaves of *S. glaucum*, *Laserpitium siler*, and *Melica ciliata* in Europe.
Uromyces seseli-graminis Ed. Fisch. See Arrhenatherum.
SETARIA. CHAETOCHLOA Ag. MILLET. Annual and perennial grasses, mostly weeds. See, also Chaetochloa.
Acrothecium lunatum Wak. See Panicum.
Balansia claviceps Speg. See Pennisetum.
Phyllachora evansii Syd. Dull-black stromata on yellowish leaf spots on *S. aurea*, *S. nigrirostris*, and *S. sulcata* in the Union of South Africa.
Phyllachora setariaecola Speg. Black stromata on leaves of *Setaria* sp. in Brazil and Ecuador.
Phyllosticta crastophila Sacc. See Phalaris.
Phyllosticta glumarum-setariae P. Henn. Pale-brown spots on glumes of *S. aurea* in the Congo.
Phyllosticta setariae Ferr. Irregular gray-white leaf spots with purple margins on *S. glauca* in Italy.
Puccinia atra Diet. and Holw. Black rust sori on leaves of *S. grisebachii* in Mexico.
Puccinia camelia (Mayor) Arth. Leaf rust on *S. scandens* and *Chaetochloa setosa* in Porto Rico and Colombia.
Puccinia setariae Diet. and Holw. Brown rust pustules on leaves of *S. caudata* and *S. imberbis* in Chile and Mexico.
Scirrhia setariae (Sacc.) Theiss. and Syd. On *S. glauca* in Italy.
Sorosporium setariae McAlp. Ovaries converted into black powdery masses of smut spores. On *S. glauca* in Queensland.
Sphaelia grisea Speg. On culms of *Setaria* sp. in Argentina.
Sphacelotheca pamparum (Speg.) Clint. Smut sori in the ovaries as oblong bodies protected by false membranes which break irregularly, disclosing dusty olive-black spore masses. On *S. geniculata* and *S. imberbis* in Mexico, Cuba, Bahamas, and Chile.
Sporotrichum peribebuyense Speg. On leaves of *Setaria* sp. in Brazil.
Tolyposporium pampeanum Speg. Dark powdery smut sori in spikelets of *Setaria* sp. in Argentina.
Tolyposporium setariicolum Syd. Smut on *S. aurea* in Central Africa.
Uromyces setariae-italicae (Diet.) Yosh. Cinnamon-brown to black rust pustules on leaves of *S. glauca*, *S. intermedia*, *S. italica*, *S. verticillata*, and *S. viridis* in India, Japan, Ceylon, China, Manchuria, the Philippines, and north Africa.
Ustilaginoidea setariae Bref. Powdery smut sori in ovaries of *S. crus-ardea* in Brazil.
Ustilago evansii P. Henn. Smut on *S. aurea* in Africa.
Ustilago heterospora P. Henn. See Panicum.
Ustilago setaria Rbh. A smut destroying the panicles of *S. glauca*, *S. viridis*, and *Syntherisma sanguinale* in Argentina and Germany.
Ustilago setariae-aureae P. Henn. Black powdery smut sori destroying the ovaries of *S. aurea* in the Congo and the Union of South Africa.
Ustilago verruculosa Wakef. Smut on *S. aurea* in tropical Africa.
SHAWIA. See Olearia.
SHOREA. Tropical trees.
Corticum salmonicolor B. and Br. See Citrus.
Fomes lignosus Klotzsch. See Hevea.
Polyporus shoreae Wakef. Rot of trunk and branches of *S. robusta* in India.
SIDA. Malvaceous herbs or shrubs, mostly weeds, one species cultivated for fiber.
Cercospora densissima Speg. Large indefinite pale-brown leaf spots on *S. rhombifolia* in Porto Rico and Argentina.
Cercosporella sidae P. Henn. Pale-brown leaf spots on *S. cordifolia* in the Congo.
Dictelia verruciformis P. Henn. Yellow-brown rust pustules on leaves of *S. macrodon* in Argentina.
Phyllosticta sidaecola Cke. Irregular, then confluent, brown leaf spots on *S. napaea* in Great Britain.
Septoria heterochroa Desm. See Malva.
SIDEROXYLON. Tropical trees and shrubs, some of value for timber.
Phyllachora baumii P. Henn. Black stromata on gray to brown leaf spots on *Sideroxylon* sp. in the Union of South Africa.
Puccinia johnstonii Arth. Brown leaf rust on *Dipholis salicifolia* and *S. foetidissimum* in Cuba.
SILENE. CAMPION. CATCHFLY. Erect annual, biennial, or perennial herbs.
Marsonia delastrei (Delacr.) Sacc. See Lychnis.
Mycosphaerella silenis v. Hoeh. Numerous small ochraceous spots on leaves and calyces of *S. latifolia* in Austria.
Peronospora vexans Gäum. Downy mildew on leaves of *Silene* spp. in Europe.
Phacidium pumilum Desm. On stems and leaves of *S. conica* and *S. rubella* in France and Tunis.
Phyllosticta nebulosa Sacc. Pale-brown leaf spots on *S. armeria*, *S. pendula*, and *S. splendens* in north Africa, Denmark, and Italy.
Phyllosticta otites Brun. Olivaceous leaf spots on *S. otites* in France.
Phyllosticta zahlbrukneri Baeuml. Subcircular gray-white leaf spots on *S. latifolia* and *S. nutans* in Russia, Hungary, and Austria.
Puccinia silenes Schroet. Brown rust pustules on leaves of *Silene* spp. and *Melandryum* sp. in Siberia and Europe.
Ramularia didymarioides Br. and Sacc. Indefinite ochraceous leaf spots on *S. latifolia* in Spain and France.

SILENE—Continued.
Ramularia lychnicola Cke. See Lychnis.
Ramularia silenes Karst. Ochraceous leaf spots on *Silene* sp. in Finland.
Septoria apetalae P. Magn. On leaves of *S. apetala* in Palestine.
Septoria dimera Sacc. Indefinite ochraceous leaf spots on *S. dichotoma*, *S. latifolia*, *S. livida*, and *S. nutans* in Europe.
Septoria doehlii Syd. Circular gray-white leaf spots on *S. nutans* in Germany.
Septoria dominii Bub. and f. **calycicola** Gz. Frag. Small circular dull-yellow leaf spots on *S. latifolia* in Yugoslavia and Spain.
Septoria silenes-nutantis C. Mass. Subcircular yellow-white leaf spots on *S. nutans* in Italy.
Septoria saponariae (DC.) Sav. and Becc. See Saponaria.
Sorosporium saponariae Rud. See Cerastium.
Uromyces behensis (DC.) Ung. Dark-brown to black rust pustules on leaves of *Silene* spp. in Europe.
Uromyces inaequialtus Lasch. Yellow to dark-brown rust pustules on leaves of *Silene* spp. in Europe, Siberia, Asia Minor, and Japan.
Ustilago major Schroet. Dark-violet smut sori in anthers of *S. otites* in Europe.

SILYBUM. MARIANA Ag. Erect thistlelike plants.
Aecidiolum marianum Gz. Frag. Leaf rust on *S. marianum* in Spain.
Hypochnus fuciformis (Berk.) McAlp. See Lolium.
Ramularia cynarae Sacc. See Cynara.
Septoria silybi Pass. Subcircular dull-brown to gray leaf spots on *S. marianum* in Italy.
Ustilago cardui F. v. Wald. Powdery brown-violet masses of smut spores replacing ovaries of *S. marianum* and *Carduus acanthoides* in Germany.

SIPHOCAMPYLUS. Herbs or shrubs, sometimes climbing.
Uredo siphocampyli P. Henn. Powdery brown rust pustules on leaves of *Siphocampylus* sp. in Argentina.
Uromyces cystopiformis Lagerh. Leaf rust on *Siphocampylus* sp. in Ecuador.

SIRMUELLERA. See Banksia.

SISYRINCHIUM. BLUE-EYED GRASS. Iridaceous fibrous-rooted perennials.
Aecidium bunsteri Neg. Rust on leaves of *S. andinum* in Chile.
Phyllosticta chilensis Allesch. Leaf spots on *S. pedunculatum* in Chile.
Puccinia angulata Diet. & Neg. Yellow rust pustules, becoming dark-brown to black, on both leaf surfaces and on scapes of *S. pedunculatum* in Chile.
Puccinia sisyrinchii Mont. (*Uromyces sisyrinchii* Mont.) Produces brown to black rust pustules on both leaf surfaces and on scapes of *S. graminifolium* and *S. palmifolium* in Chile and Argentina. Reported from Washington.
Puccinia straminea Diet. Brown to dark-brown powdery rust pustules on both surfaces of leaves of *Sisyrinchium* sp. in Brazil.
Septoria sisyrinchii Speg. Leaf spot on *S. bonariense* in Argentina.
Uredo nominata Arth. Leaf rust on *S. bermudianum* in Bermuda.

SMILACINA. VAGNERA Ag. FALSE SOLOMON'S SEAL. Perennial herbs.
Protomyces purpureo-tingens Mass. Elongated or broadly effused red or purple patches on cotyledons and young leaves of *Smilacina* sp. in Great Britain.

SMILAX. GREENBRIER. CATBRIER. Herbaceous or shrubby climbers.
Blastospora smilacis Diet. Yellow rust pustules on small sunken leaf spots on *S. herbacea* and *S. sieboldii* in Japan.
Cercospora miyakei P. Henn. Circular to angular, then confluent, leaf spots on *S. herbacea* in Japan.
Cercospora smilacina Speg. Small brown leaf spots on *Smilax* sp. in Brazil. Saccardo has given the same name to a species on leaves of *S. aspera* and *S. mauritanica* in Italy, Spain, Portugal, and the United States.
Dothidella smilacicola Rehm. Black stromata on leaves of *Smilax* sp. in Brazil.
Gloeosporium thuemeni Sacc. See Anthurium.
Marsonia smilacina Thuem. Irregular ochraceous leaf spots on *S. mauritanica* in Spain and Portugal.
Phaeochorella clypeata (Wint.) Theiss. and Syd. Shiny black stromata on leaves of *Smilax* sp. in Brazil.
Phyllosticta smilacina Speg. Rufous leaf spots on *S. campestris* in Argentina.
Puccinia citrina Syd. Leaf rust on *S. gaudichaudiana*, *S. stenopetala* and *Smilax* sp. in China, Japan, and the Philippines.
Puccinia ferruginea Lév. Dull brown rust pustules on leaves of *S. aspera* and *S. zeylanica* in Macao and Ceylon.
Puccinia henryana Syd. Leaf rust on *S. china*, *S. herbacea*, and *S. menispermoidea* in Japan and China.
Puccinia kraussianae Cke. Brown rust pustules on leaves of *S. kraussiana* in central and south Africa.
Puccinia merrillii P. Henn. Leaf rust on *S. bracteata*, *S. latifolia*, and *S. vicaria* in the Philippines.
Puccinia prainiana Barcl. Brown rust pustules on leaves of *S. aspera*, *S. elegans*, and *S. maculata* in India.
Puccinia smilacis-chinae P. Henn. Leaf rust on *S. chinense* and *S. herbacea* in Japan and the Philippines.
Sphenospora pallida (Wint.) Diet. Waxy rust pustules on leaves of *Smilax* sp. in Guatemala, Costa Rica, and South America.
Uredo yurimaguasensis P. Henn. Leaf rust on *Smilax* sp. in Peru.

SOBRALIA. See Orchidaceae.

SOJA. SOYBEAN. Herbaceous leguminous plants, with a wide range of economic uses. (Including *Glycine*.)
Aecidium glycines P. Henn. Leaf rust on *S. max* in Tanganyika and Uganda.
Ascochyta sp. On *S. max* in Japan.
Bacterium sp. A leaf-spotting disease of *S. max*, said to be due to a bacterium distinct from other species on this host, is reported from Japan.
Cercospora daizii Miura. Leaf spot on *S. max* in Manchuria.
Cercospora glycines Cke. Definite dark-brown leaf spots on *Glycine clandestina* in Australia.
Colletotrichum glycines Hori. Anthracnose on stems and pods of *S. max* in Japan and Chosen.
Fusarium sp. Causes ring spot disease of *S. max* in Manchuria.
Hypochnus centrifugus Tul. Causes cankers on stems, blighting infected plants of *S. max* in Manchuria.
Hypochnus cucumeris Frank. See Cucumis.
Mosaic. Mosaic disease of *S. max* reported from Japan is probably the same as the mosaic and crinkling reported from the United States.

SOJA—Continued.

Mycosphaerella phaseolarum Siem. See Phaseolus.

Peronospora manshurica (Naoum.) Syd. (*P. trifoliorum* De B. var. *manshurica* Naoum.) Downy mildew on leaves of *S. max* in Siberia, India, Formosa, and Manchuria, causing premature leaf fall.

Phyllosticta sojaecola Massal. (*Phaeosphaerulina sojaecola* Miura.) Subcircular, dull-brown leaf spots on *S. max* in Japan, Russia, Manchuria, and Italy.

Pseudomonas glycines Nak. Circular yellow leaf spots, becoming brown to dark-brown with yellow margins, on *S. max* in Japan. The spots may be as numerous as 70 to 80 per square centimeter, causing death of infected leaves.

Septoria glycines T. Hem. Brown leaf spots on *S. max* in Japan and Manchuria.

Septoria sojina v. Thuem. Irregular yellowish leaf spots on *S. max* in Italy, Japan, and Austria.

Trotteria venturioides Sacc. Black mildew on leaves of *S. max* in the Philippines.

Uredo vignae Bres. See Vigna.

Uromyces sojae (P. Henn.) Syd. Brown rust pustules on leaves of *S. max* in Japan, Java, China, India, Formosa, Manchuria, and the Philippines.

SOLANUM. NIGHTSHADE. POTATO. EGGPLANT. Temperate and tropical herbs and shrubs, many species of economic, ornamental, or medicinal value.

Actinomyces spp. A number of species of *Actinomyces* have been described from Germany, causing various types of scab on potato (*S. tuberosum*) tubers. Whether these forms differ from *A. scabies* the common American species, is problematical as yet. These forms include *A. albus* (R. D.) Gasp. (girdle scab); *A. incanescens* Wr. (deep scab); *A. intermedius* (Krug.) Wr. (shallow scab); *A. nigrificans* (Krug.) Wr. (girdle scab); *A. aerugineus* Wr. (knobby scab), and *A. tricolor* Wr. (shallow scab).

Aecidium habunguense P. Henn. Leaf rust on *S. melongena* in India.

Aecidium solani Beeli. Leaf rust on *Solanum* sp. in Belgian Congo.

Aecidium solani-unguiculati P. Henn. Leaf rust on *S. unguiculatum* in Abyssinia.

Ascochyta dulcamara Bub. On leaves of *S. dulcamara* in Bohemia and Germany.

Ascochyta solani-nigri Died. Circular to ovate white leaf spots with dark margins on *S. nigrum* in Germany.

Bacillus spp. Bacteria, the occurrence of which is unknown in the United States, cause the rotting of potato (*S. tuberosum*) tubers in India and Malaya.

Bacillus caulivorus Prill. and Delacr. Said to cause cankers on the stems of *S. tuberosum*, *Lycopersicum esculentum*, and *Nicotiana tabacum* in Italy and France.

Bacillus tubifex Dale. Irregular brown spots, generally along veins or margins of leaves of *S. tuberosum* in Great Britain.

Bacterium sp. An undescribed species of *Bacterium* is reported from Morocco as causing a serious potato (*S. tuberosum*) disease. The disease begins at the apex of the plant as brown patches on the leaflets, which rapidly turn black and wilt. The disease works down the petioles into the stems and finally to the tubers. The tops of the plants are covered with elongate black patches and finally die. Small violet-black spots appear on the tubers, enlarging until the entire tuber surface is involved, a soft rot ensuing.

Cercospora aratai Speg. Circular ashen-brown leaf spots on *S. glaucum* in Argentina.

Cercospora dulcamaricola Höll. Circular brown leaf spots on *S. dulcamara* in Hungary.

Cercospora heterosperma Bres. On leaves of *S. tuberosum* in Poland.

Cercospora incarnata P. Henn. On leaves of *Solanum* sp. in Brazil.

Cercospora melongena Welles. Irregular, then confluent, zoned, chlorotic areas on leaves of *S. melongena* in the Philippines.

Cercospora solanacea Sacc. and Berl. Subcircular brown leaf spots on *S. verbascifolium* in Australia.

Cercospora tosensis P. Henn. Circular, then confluent, dull-brown spots on leaves of *S. biflorum*, *S. nigrum*, and *Solanum* sp. in the Philippines and Japan.

Chrysophlyctis endobiotica Schilb. (*Synchytrium endobioticum* [Schilb.] Perc.) The potato (*S. tuberosum*) wart disease or potato canker is one of the most serious diseases of this important crop. It occurs in Great Britain, Holland, Norway, Poland, Luxemburg, the Union of South Africa, and Germany. In the United States the disease also occurs in limited areas in Maryland, West Virginia, and Pennsylvania. The disease is characterized by wartlike outgrowths on the tubers, which vary in size and distribution. They commonly develop from the eyes of tubers, more rarely on stolons or base of stems. The warts are at first whitish, turning black with age. Exposed warts take on a green color. In size they vary from small nodules to masses larger than the tubers on which they are borne. The organism causing the disease can persist in the soil for many years and is readily carried from place to place in this medium. The tomato (*Lycopersicum esculentum*) has been found capable of harboring the disease. By inoculation *S. dulcamara* and *S. nigrum* have been found susceptible.

Didymopsora solani Diet. Leaf rust on *Solanum* sp. in Brazil.

Didymopsora solani-argentei (P. Henn.) Diet. Rust pustules on circular dull-brown leaf spots on *S. argentum* in Brazil.

Guignardiella nervisequia (Rehm.) Sacc. and Syd. On leaves of *S. auriculatum* in Brazil.

Helminthosporium solani McAlp. On leaf blades and petioles and stems of *S. viride* in New South Wales.

Helminthosporium solanium Sacc. and Syd. Leaf spots on *S. argenteum* in Brazil.

Leptosphaeria circinans (Fckl.) Sacc. See Asparagus.

Moniliopsis aderholdi Ruhl. The "vermerhrungs Pilze" attacks the tubers of *S. tuberosum* and also causes a damping-off of seedlings of many species of cultivated plants, including *Beta vulgaris*, *Brassica* spp., *Cinchona* sp., and *Raphanus* in Europe and Java. The fungus forms black sclerotia similar to those of *Rhizoctonia solani*, with which it is sometimes considered identical.

Oospora pustulans Owen and Wakef. The skin spot disease of potatoes (*S. tuberosum*) occurs in Great Britain and in limited areas in Washington and British Colombia. Numerous small circular, slightly raised areas occur on the tubers. The possible connection of this disease with immature stages of powdery scab (*Spongospora*) has not yet been definitely settled.

Phellomyces sclerotiophorus Frank. Reported as the cause of a scab and dry rot of potato (*S. tuberosum*) tubers in Russia and Great Britain.

Phoma solanicola Prill. and Delacr. See Nicotiana.

Phyllachora fluminensis Theiss. Shiny black stromata on brown leaf spots on *Solanum* sp. in Brazil.

Phyllohendersonia dulcamarae (Sacc.) Tass. On leaves of *S. dulcamara* in Italy.

Phyllosticta concentrica Th. On leaves of *Solanum* sp. in Brazil.

Phyllosticta dulcamarae Sacc. Brown, often marginal, leaf spots on *S. dulcamara* in France, Italy, and Denmark. Reported from Kansas.

Phytophthora arecae (Colem.) Pethybr. See Palmae.

SOLANUM—Continued.

Phytophthora erythroseptica Pethybr. This downy mildew fungus causes a wilting of potato (*Solanum tuberosum*) plants and a moist rot of the tubers in Ireland, Switzerland, Holland, and Dutch East Indies. Cut surfaces of infected tubers turn pink rapidly upon exposure to air, becoming purplish-brown to black after several hours. Diseased tubers remain firm, but of rubbery consistency, and if pressed exude a quantity of juice, becoming finally completely rotted. *Atropa belladonna* is reported as an additional host in Poland.

Phytophthora melongenae K. Saw. Downy mildew attacking primarily fruit of *S. melongena* in Japan but also capable of infecting *S. tuberosum*, *Areca catechu*, *Hibiscus esculentus*, *Lycopersicum esculentum*, *Nicotiana* sp., and *Ricinus* sp.

Phytophthora parasitica Dastur. See Ricinus.

Pseudomonas solaniolens Paine. This bacterium has been described as the cause of internal brown spot of potato (*S. tuberosum*) tubers in Europe.

Puccinia araucana Diet. and Neg. Yellow and brown rust pustules on deformed leaves and branches of *S. crytopodium* and *S. valdivianum* in Chile.

Puccinia hieronymi P. Henn. Leaf rust on *S. incisum* and *S. nodiflorum* in Argentina.

Puccinia huallagensis P. Henn. Cinnamon-brown rust sori on dark-brown leaf spots on *S. torvum* in Peru and Colombia.

Puccinia imitans Syd. Leaf rust on *Solanum* sp. in Ecuador.

Puccinia negeriana Diet. Dark-brown rust pustules on leaf blades and petioles of *S. furcatum* in Chile.

Puccinia pitteriana P. Henn. Numerous brown rust pustules on lower leaf surfaces of *S. tuberosum* and *Lycopersicum esculentum* in Costa Rica and Colombia. This rust appears to be capable of causing heavy damage to the host plants through drying and premature fall of leaves.

Puccinia solanacearum Sacc. and Syd. Black rust pustules on leaves of *Solanum* sp. in India.

Puccinia solanita (Schw.) Arth. Brown leaf rust on *Solanum* sp. and *S. donnellsmithii* in Trinidad, Panama, and Surinam.

Puccinia solani-tristis P. Henn. Powdery black rust pustules on leaves of *S. triste* in Brazil.

Puccinia tjilibodensis Gäum. Brown leaf rust on *S. biflorum* in Java.

Puccinia tubulosum (Pat. and Gaill.) Arth. See Paspalum.

Puccinia weberbaueri P. Henn. Dark-brown rust pustules on yellow-brown leaf spots on *Solanum* sp. in Peru.

Pucciniosira solani Lagerh. Yellow leaf rust on *Solanum* sp. in Ecuador.

Rhizoctonia destruens Tassi. This fungus attacks its hosts at the ground level, setting up a rot which destroys the plants, the numerous brown sclerotia appearing on the rotted areas. Potato tubers are soft rotted, thick white strands of mycelium growing over the surface. The fungus is reported from Italy, India, and Java, on *S. melongena*, *S. tuberosum*, *Amorphophallus campanulatus*, *Arachis hypogaea*, *Delphinium decorum*, *D. grandiflorum*, *D. magnificum*, *D. machayanum*, *D. montanum*, *Dianthus* sp., *Hibiscus rosa-sinensis*, *Lobelia laxiflora*, *Medicago sativa*, *Oryza sativa*, *Piper betel*, and other hosts. The fungus is not distinct from *Sclerotium rolfsii*, but may represent a strain not present in the United States.

Sarcinella raimundoi Sacc. On leaves of *S. melongena* in the Philippines.

Septoria dulcamarae Desm. Small subcircular brown, then gray, leaf spots on *S. dulcamara* in Europe.

Septoria pseudo-quinae Pat. Dull-brown to gray leaf spots with black borders on *S. pseudo-quina* in Ecuador.

Septoria solanina Speg. Small circular dull-brown leaf spots on *S. gracile* in Argentina.

Septoria solani-nigri Scalia. Circular, then confluent, dull-brown leaf spots on *S. nigrum* in Italy.

Septoria solanophila Speg. Circular gray-white leaf spots with purple margins on *S. verbascifolium* in Argentina.

Spongospora subterranea (Walls.) Lang. Powdery scab is a disease introduced within recent years into the United States from Europe, and now established in the northern potato (*S. tuberosum*) growing regions. It does not seem to be able to persist south of the New England and Lake States. It occurs in northern Europe, Algeria, northern South America, and New Zealand. Other hosts are *S. ciliatum*, *S. commersoni*, *S. haematocladum*, *S. mammosum*, *S. marginatum*, *S. warscewiczii*, and *Lycopersicum esculentum*.

The disease closely resembles common scab, but is distinguished by the smaller, more definite lesions, which on maturity break open, revealing brown, powdery masses, surrounded by the torn skin of the tubers.

Sporidesmium exitiosum Kuehn. var. **solani** Fckl. On stems of *S. tuberosum* in Russia. See also Brassica.

Sporidesmium melongenae Thuem. On leaves of *S. melongena* in Portugal and Brazil.

Tylenchus dipsaci Kuehn. A biological strain of this nematode attacks potato (*S. tuberosum*) tubers in Great Britain. Brown patches appear on the skin followed by internal rot. See also Narcissus.

Uredo minitans Speg. Brown rust pustules on circular leaf spots on *S. commersoni* in Argentina.

Urocystis hieronymi Schroet. Ochraceous smut sori on branches and peduncles of *Solanum* sp. in Bolivia.

Uromyces solani Diet. and Holw. Yellow-brown to dark-brown rust pustules on leaves of *S. appendiculatum* and *S. nudum* in Mexico.

Vermicularia capsici Syd. See Capsicum.

Vermicularia varians Duc. The black dot disease or "dartrose" is considered a serious disease of *S. tuberosum* in France and some other European countries. It is also reported from the Union of South Africa, Australia, Brazil, and Canada. The fungus undoubtedly occurs in the United States, but has not been associated with a definite disease of the potato. In Europe the disease attacks the stems, roots, and tubers. The fungus also occurs on *Lycopersicum esculentum* and *Physalis peruviana*. It is more properly referable to *Colletotrichum*.

SOLARIA. Bulbous plants.

Uromyces solariae Diet. Chestnut colored powdery rust pustules on both leaf surfaces of *S. mier sioides* in Chile.

SOLDANELLA. Small, glabrous, perennial herbs with short rhizomes.

Puccinia soldanellae (DC.) Fckl. Yellow and dark-brown rust pustules on leaves of *S. alpina*, *S. minima*, *S. montana*, and *S. pusilla* in Europe.

Septoria soldanellae Speg. and var. **pirolaefoliae** Vogl. Brown spots, often occupying the entire leaf area, on *S. alpina*, *S. montana*, and *S. pyrolaefolia* in Italy.

Septoria versicolor Bub. Circular to irregular yellow-white leaf spots on *S. montana* in Bohemia.

Thecaphora hyalina Fingerh. See Convolvulus.

SOLIDAGO. GOLDENROD. Perennial herbs.
Cercospora fulvescens Sacc. Small yellow-brown leaf spots on *S. virgaurea* in Denmark, Italy, and Japan. Reported from Colorado and Kansas.
Mycosphaerella virgaureae Krieg. On leaves of *S. virgaurea* in Germany.
Ovularia virgaureae (Thuem.) Sacc. On leaves of *S. virgaurea* in Denmark, Switzerland, and Germany.
Phyllosticta solidaginis Bres. On leaves of *S. virgaurea* in Germany.
Puccinia solidaginicola Diet. Leaf rust on *Solidago* sp. in Chile.
Puccinia solidaginis-microglossae Diet. Chestnut-brown rust pustules on yellow or brown leaf spots on *S. microglossa* in Argentina.
Puccinia virgaureae (DC.) Lib. Black rust pustules on leaves of *S. microglossa* and *S. virgaurea* in Japan and Europe.
Septoria virgaureae Desm. On leaves of *S. virgaurea* in Yugoslavia, Italy, and Switzerland.
Uromyces komarovii Bub. Brown rust pustules on leaves of *S. virgaurea* in Japan and Manchuria.
SONCHUS. SOW THISTLE. Composites, mostly weeds, some species used for foliage effects.
Bremia sonchi K. Saw. Downy mildew causing small polygonal spots on stems and leaves of *S. oleraceus* in Formosa.
Coleosporium sonchi Lév. Leaf rust on *S. asper, S. oleraceus, S. palustris,* and *S. uliginosus* in Europe. The aecial stage occurs on *Pinus sylvestris.* Introduced into Wisconsin and found locally on *S. asper* and *Pinus sylvestris.*
Phyllosticta sonchi Sacc. Gray-white leaf spots on *S. oleraceus* in Russia and Italy.
Puccinia sonchi Rob. Yellow to black rust pustules on leaves of *Sonchus* spp. in Ceylon, Japan, Algeria, Canary Islands, and Europe.
Puccinia sonchina Syd. Brown rust pustules on leaves of *S. oleraceus* in Japan and Portugal.
Ramularia sonchi-arvensis Fautr. On leaves of *S. oleraceus* in Spain and France.
Septoria modonia Sacc. Small subcircular spots on leaves and stems of *S. arvensis* in France.
Septoria sonchi Sacc. Oblong greenish-gray leaf spots on *S. oleraceus* in Italy.
Septoria sonchicola Höll. Circular ochraceous leaf spots with black borders on *S. uliginosus* in Hungary.
Septoria sonchina Thuem. Leaf spots on *S. oleraceus* in Siberia.
Synchytrium globosum Schroet. See Potentilla.
SOPHRONITIS. See Orchidaceae.
SOPHORA. Shrubs or herbs grown for their attractive flowers and handsome foliage.
Aecidium sophorae Kus. Leaf rust on *S. platycarpa* in Japan.
Ascochyta sophorae Allesch. On branches of *S. japonica* in Germany.
Macrosporium sophorae Turconi. Circular brown leaf spots on *S. japonica* in Italy.
Phyllosticta sophoricola Höll. Irregular ashen leaf spots with dull-brown borders on *S. japonica* in Hungary.
Uromyces shikokianus Kus. Leaf rust on *S. shikokiana* in Japan.
Uromyces sophorae-flavescentis Kus. Brown leaf rust on *S. flavescens* in Japan.
Uromyces sophorae-japonicae Diet. Brown rust pustules on leaf blades and petioles of *S. japonica* in Japan.
Uromyces trunicola P. Henn. and Shir. Dark-brown rust pustules on branches and trunks of *S. japonica* in Japan.
SORBARIA. SCHIZONOTUS. Ag. FALSE SPIREA. Ornamental woody plants related to *Spiraea.*
Leptosphaeria spiraeae Karst. On branches of *S. sorbifolia* in France.
Phyllosticta spiraeina Brun. See Spiraea.
SORBUS. MOUNTAIN ASH. Trees grown for their handsome foliage, white flowers and ornamental red fruit.
Cercospora ariae Fckl. On leaves of *S. aria* in Germany.
Cercospora kriegeriana Bres. Rufous-brown leaf spots on *S. aucuparia* in Germany.
Fusicladium orbiculatum (Desm.) Thuem. Brown scabby areas on leaves of *S. aria, S. aucuparia, S. domestica,* and *S. torminalis* in Europe.
Gloeosporium aucupariae P. Henn. Dark-brown anthracnose spots on fruit of *S. aucuparia* in Russia.
Gloeosporium sorbi Rostr. Numerous subcircular ashen leaf spots on *S. fennica* in Finland.
Gymnosporangium miyabei Yam. and Miy. See Chamaecyparis.
Gymnosporangium solenoides (Diet.) Kern. See Chamaecyparis.
Gymnosporangium torminali-juniperinum Ed. Fisch. See Juniperus.
Laestadia radiata (Walbr.) Sacc. On leaves of *S. torminalis* in Germany.
Leptosphaeria sorbi Jacz. Subcircular gray leaf spots on *S. aucuparia* in Siberia.
Marsonia sorbi P. Magn. Indefinite, yellow-brown leaf spots on *S. aria* in Europe.
Mycosphaerella cinerascens (Fckl.) Vgr. On leaves of *S. aria* and *S. scandica* in Denmark and Germany.
Mycosphaerella topographica (Sacc.) Vgr. On leaves of *S. aucuparia* and *S. torminalis* in Denmark and Italy.
Ochropsora ariae (Fckl.) Syd. Yellow leaf rust on *S. americana, S. amicana, S. aria, S. aucuparia, S. fennica, S. intermedia, S. latifolia, S. scandica, S. torminalis, Amelanchier canadensis, Aruncus sylvestris, Pyrus communis,* and *Malus* in Europe and Formosa. The aecial stage occurs on *Anemone nemorosa.*
Phyllohendersonia torminalis-ariae (Br. and Har.) Tass. On *S. aria* and *S. torminalis* in France and Italy.
Phyllosticta aucupariae Thuem. Subcircular ashen leaf spots with dull-brown margins on *S. aucuparia* in Siberia, Russia, Italy, and Hungary.
Phyllosticta sorbi West. Subcircular, then confluent, ashen leaf spots with dark-purple margins on *S. aucuparia, S. domestica, S. lanuginosa,* and *S. scandica* in Belgium and Portugal. Reported from Missouri.
Sclerotinia aucupariae Woron. Brown rot of fruit, which finally are mummified. On *S. aucuparia* in Finland.
Septoria aucupariae Bres. Dull-yellow leaf spots on *S. aucuparia* in Denmark and Germany.
Septoria aucuparicola Oud. Circular to irregular, then confluent, dull-brown to ashen leaf spots on *S. aucuparia* in Holland.
Septoria hyalospora (Mont. and Ces.) Sacc. On leaves of *S. aria, S. domestica,* and *S. torminalis* in Italy and Germany.
Septoria inaequalis Sacc. and Roum. On *S. aucuparia* in France.
Septoria sorbi Lasch. Small circular brown spots on leaves of *S. aucuparia* in Austria.
Septoria sorbi-hybridae Pass. On leaves of *S. hybrida* in Italy.
SORGHUM. See Holcus.

SPARAXIS. WAND FLOWER. Iridaceous, bulbous or cormous plants.
Uromyces sparaxidis Syd. Yellow to dark-brown rust pustules on both leaf surfaces of *S. lineata* in Natal.
SPARGANIUM. BUR REED. Marsh or aquatic plants.
Ascochyta quadriguttulata Kab. and Bub. Irregular linear, then confluent, yellow-brown leaf spots on *S. ramosum* in Bohemia.
Cylindrosporium aquaticum (Fautr. and Roum.) Sacc. On leaves of *Sparganium* sp. in France.
Physoderma sparganii-ramosi (Buesg.) Schroet. On *S. ramosum* in Germany.
Ramularia frutescens Kab. and Bub. On leaves of *S. ramosum* in Bohemia.
Ramularia sparganii Lindr. Circular brown leaf spots on *S. glomeratum* and *S. simplex* in Sweden, Finland, Silesia, and Austria.
Septoria flexuosa Oud. On leaves of *S. ramosum* in Holland.
Septoria sparganii Pass. On leaves of *S. erectum* and *S. ramosum* in Italy.
SPARTINA. Perennial marsh grasses.
Phyllosticta spartinae Brun. Subcircular small white spots with brown margins on leaf sheaths of *S. stricta* in France.
Uredo spartinae-strictae Pat. and Har. Linear brown rust pustules on leaves of *S. stricta* in France.
SPARTIUM. WEAVERS'-BROOM. Ornamental hardy shrubs grown for their bright-yellow flowers.
Physalospora euganea Sacc. (*P. albanica* Petr.) On stems of *S. junceum* in Albania and Yugoslavia.
Septoria spartii Rob. and Desm. Circular olivaceous leaf spots on *S. junceum* in France.
Uromyces spartii-juncei Syd. Powdery brown rust sori on leaves of *S. junceum* in Dalmatia France, and Portugal.
SPATHOGLOTTIS. See Orchidaceae.
SPECULARIA. VENUS'S LOOKING-GLASS. Erect or decumbent annual herbs.
Ramularia prismatocarpi Oud. Forms grayish areas on lower leaf surfaces of *S. speculum* in Dalmatia and Holland.
Septoria prismatocarpi Desm. On leaves of *S. hybrida* and *S. speculum* in Italy and France.
SPERGULA. SPURRY. Annual herbs.
Mycosphaerella alsines Pass. On stems and leaves of *S. campestris* in Denmark.
Peronospora lepigoni Fckl. Downy mildew on leaves of *S. campestris* and *S. marina* in north Europe.
Peronospora vernalis Gäum. Downy mildew on leaves of *S. pentandra* and *S. vernalis* in Germany.
Puccinia spergulae DC. Brown to dark-brown rust pustules on leaf blades and petioles and stems of *S. arvensis, S. pentandra, S. vernalis,* and *Spergularia rubra* in Europe. Reported from New York.
Septoria spergulae West. On leaves and stems of *S. arvensis* in Sweden and Belgium.
Uromyces sparsus (Kze. and Schm.) Lév. Leaf and stem rust on *S. marginata, S. media, S.* (*Spergularia*) *rubra,* and *S. salina* in French North Africa and Europe.
SPHAERALCEA. PHYMOSIA Ag. GLOBE MALLOW. Shrubs and herbs.
Aecidium sphaeralcearum (Speg.) Sacc. and Trott. Leaf rust on *S. bonariensis* and *S. cisplatina* in Argentina.
Uromyces costeslanus Speg. Leaf rust on *S. velutina* in Chile.
Uromyces platysporus Speg. Dark-brown leaf rust on *S. miniata* and *S. rhombifolia* in Argentina.
SPIGELIA. PINKROOT Annual and perennial herbs.
Coleosporium spigeliae Arth. Yellow powdery rust pustules on leaves of *S. humboldtiana* in Salvador and Guatemala.
Puccinia spigeliae Syd. Leaf rust on *Spigelia* sp. in Brazil.
Septoria spigeliae P. Henn. Subcircular dull-brown leaf spots with dark-brown borders on *S. anthelmintica* in Jamaica and Brazil.
SPILANTHES. Herbs, mostly weeds, a few species cultivated for their yellow flower heads.
Entyloma spilanthis Speg. Smut sori on leaves of *S. leptophylla* in Argentina.
Puccinia africana Cke. Dark-brown rust sori on brown sunken spots on *S. acmella, S. africana,* and *S. oleracea* in Abyssinia, Madagascar, and tropical and south Africa.
Puccinia barranquiliae Mayor. Leaf rust on *S. urens* in Colombia.
Puccinia melampodii Diet. and Holw. See Zinnia.
Puccinia spilanthicola Mayor. Leaf rust on *S. americana* and *S. ciliata* in Colombia.
Puccinia spilanthis P. Henn. Dark-brown rust sori on leaves of *S. ciliata, S. oleracea, S. salzmanni,* and *S. uliginosa* in Martinique, Brazil, Argentina, and Peru.
SPINACIA. SPINACH. Annual herbs, cultivated for "greens."
Aecidium spinaciae Rostr. Leaf rust on *S. tetrandra* in Russia.
Alternaria spinaciae Allesch. and Noack. On living leaves of *S. oleracea* in Brazil.
Ascochyta chenopodii Rostr. See Atriplex.
Cercospora spinaciae Oud. Pale greenish or yellowish, often confluent, leaf spots on *S. oleracea* in Holland.
Gloeosporium spinaciae Ell. and Fautr. Subcircular, then confluent, brown leaf spots on *S. oleracea* in France.
Phyllosticta spinaciae A. Zimm. Large irregular leaf spots on *S. oleracea* in Belgium and Austria.
Ramularia spinaciae Nypels. Brown leaf spots on *S. oleracea* in Belgium.
Septoria spinaciae West. Circular leaf spots on *S. oleracea* in France, Russia, and Belgium.
SPIRAEA. SPIREA. Bridal wreath. Shrubs grown for their profuse, handsome white or pink flowers.
Aphelenchus olesistus Ritz. Bos. See Begonia.
Cercospora spiraeae Thuem. Irregular, often confluent, dull-brown leaf spots on *S. chamaedryfolia* and *Opulaster opulifolius* (*S. opulifolia*) in Siberia.
Cercosporella callosa Allesch. Subcircular brown, then ashen-white, leaf spots with brown margins on *S. japonica* (*S. callosa*) in Germany.
Cylindrosporium filipendulae Thuem. See Filipendula.
Excipula spiraeae Thuem. On leaves of *S. thalictroides* in Siberia.
Gloeosporium spiraeae Bres. Indefinite dull-brown leaf spots on *Opulaster opulifolius* (*S. opulifolia*) in Germany.
Heterosporium spiraeae Syd. Dull-brown irregular, then confluent, spots on leaves of *Spiraea* sp. in Austria.
Ochropsora ariae (Fckl.) Syd. See Sorbus.
Phyllosticta ariaefolia Allesch. Subcircular to irregular dull-brown leaf spots on *S.* (*Holodiscus*) *ariaefolia* in Germany.
Phyllosticta crenatae Brun. Oblong to angular leaf spots, black above, grayish-brown beneath, on *S. crenata* in France.
Phyllosticta spiraeae-salicifoliae Kab. and Bub. Circular to oblong dull-yellow to dark-brown leaf spots on *S. salicifolia* in Bohemia.

SPIRAEA—Continued.
Phyllosticta spiraeina Brun. Subcircular brown leaf spots with red-brown margins on *S. bumalda* and *Sorbaria sorbifolia* in France and Germany.
Septoria ascochytoides Sacc. Subcircular to oblong ochraceous to dull-brown leaf spots on *S. chamaedryfolia* and *S. decumbens* in Siberia.
Triphragmium filipendulae (Lasch.) Pass. See Filipendula.
SPIRANTHES. Lady's-tresses. See Orchidaceae.
SPONDIAS. Yellow mombin. Jobo. Spanish plum. Tropical fruit trees.
Ascochyta spondiacearum A. L. Sm. White leaf spots with dull-brown margins on *S. mombin* in Angola.
Endothia havanensis Bruner. See Eucalyptus.
Fomes lamaoensis Murr. See Hevea.
Kuehneola aliena Syd. and Butl. Leaf rust on *S. mangifera* in India and Ceylon.
Uredo spondiadis Petch. Leaf rust on *S. mangifera* in Ceylon.
SPOROBOLUS. Dropseed. Grasses, a few species cultivated for forage.
Entyloma majus Har. and Pat. Smut sori on small gray leaf spots on *S. spicatus* in the Congo.
Phyllachora sporoboli Pat. Elongate black stromata on *S. pungens* in Algeria and the Philippines.
Puccinia spegazziniella Sacc. and Trav. Dark-brown rust pustules on leaves of *S. asperifolius* in Argentina.
Tilletia zonata Bref. Black powdery smut masses in flowers of *S. ligularis* in Ecuador.
Uredo egenula Arth. Brown powdery leaf rust on *S. argutus* in Jamaica.
Uromyces major Arth. Brown leaf rust on *S. diander* and *S. indicus*, in India, Ceylon, and Trinidad.
Uromyces tenuicutis McAlp. Yellow to brown rust pustules on leaves and stems of *S. indicus* in Australia and Japan.
Ustilaginoidea ochracea P. Henn. In spikes of *S. elongatum* in North Borneo.
Ustilago schiechteri P. Henn. Black smut sori distorting the panicles and splitting the stems of *Sporobolus* sp. in the Union of South Africa.
STACHYS. Betony. Tall perennial herbs or diffuse winter annuals.
Ovularia betonicae Mass. On leaves of *S. alopecuros* in Austria.
Ovularia stachydis Bres. On leaves of *S. palustris* in Germany.
Peronospora stachydis Syd. Downy mildew on leaves of *S. arvensis* in Europe.
Phyllosticta stachydis Brun. and var. **arvensis** Allesch. Angular brown leaf spots on *S. arvensis* and *S. sylvatica* in France and Germany.
Phyllosticta varicolor Bub. Irregular brown, then yellow-white, leaf spots on *S. germanica* in Hungary.
Puccinia aethiopica Kalchbr. and Cke. Brown leaf rust on *S. aethiopica* and *S. grandifolia* in the Union of South Africa.
Puccinia albida Diet. and Neg. Leaf rust on *S. grandidentata* and *S. mayorii* in Chile.
Puccinia hariotí Lagh. Yellow and dark-brown rust pustules on leaves of *S. setifera* and *S. spectabilis* in Persia and Anatolia.
Puccinia pallidissima Speg. Brown leaf rust on *S. arvensis* and *S. lindeni* in Argentina, Brazil, Ecuador, and Guatemala.
Puccinia stachydis DC. Brown rust pustules on leaves, stems, and calyces of *S. recta* in Russia, France, Italy, Austrla, and Germany.
Puccinia vossii Koern. Powdery brown rust pustules on leaves of *S. recta* and *S. setifera* in Europe.
Ramularia cardiaca Sacc. and Penz. Oblong to irregular spots on leaves and bracts of *S. annua* and *S. recta* in Italy and Switzerland.
Ramularia stachydis (Pass.) Mass. On leaves of *S. annua* and *S. recta* in Yugoslavia.
Ramularia stachydis-alpinae Allesch. Irregular ochraceous-brown leaf spots on *S. alpina* in Germany.
Septoria stachydis Rob. and Desm. Irregular olivaceous, then pale-brown, leaf spots on *S. annua*, *S. palustris*, and *S. sylvatica* in Europe.
Ustilago betonicae Berk. Smut in anthers of *A. alopecuros* in Austria.
STACHYTARPHETA. VALERIANOIDES Ag. Tropical and subtropical herbs and shrubs.
Cercospora stachytarphetae E. and E. Small circular white leaf spots on *S. jamaicensis* in the Bahamas and Porto Rico.
Endophyllum stachytarphetae (P. Henn.) W. and O. Small yellow rust pustules on leaves of *S. cayennensis* and *S. dichotoma* in Porto Rico, Brazil, and Colombia.
Puccinia urbaniana P. Henn. Dark-brown rust pustules on small circular brown spots on *S. cayennensis* and *S. jamaicensis* in Porto Rico, Jamaica, and Trinidad.
STACHYURUS. Ornamental shrubs grown for their early flowers and handsome foliage.
Uredo stachyuri Diet. Brown leaf rust on *S. praecox* in Japan.
STANGERIA. A subtropical cycad.
Placosphaeria stangeriae (Zimm.) Bub. Large irregular brown leaf spots on *S. paradoxa* in Bohemia.
STANHOPEA. See Orchidaceae.
STAPHYLEA. Bladder nut. Shrubs cultivated for their white flowers, handsome foliage, and inflated podlike fruit.
Ascochyta staphyleae Syd. Circular brown leaf spots with purple margins on *S. trifolia* in Germany.
Laestadia staphyleae Hazsl. Attacks young branches of *S. pinnata* in Hungary.
Phyllosticta osteospora Sacc. var. **staphyleae** C. Mass. Irregular brown leaf spots on *S. pinnata* in Italy and Austria.
Phyllosticta staphyleicola Oud. On leaves of *S. pinnata* in Holland.
Septoria staphyleae Pass. Rufous leaf spots on *S. pinnata* in Italy.
STATICE. Thrift. Sometimes called "sea pink." Annuals, biennials, and perennials cultivated for their flowers and foliage. See also Armeria.
Ascochyta statices P. Nag. On leaves of *Statice* sp. in Russia.
Phyllosticta staticis Petr. Large brown leaf spots, lighter at the center, and with red-brown margins on *Statice* sp. in Bohemia.
Ramularia statices E. Rostr. Large circular to oblong ochraceous leaf spots with dull-brown margins on *S.* (*Limonium*) *behusiensis* and *S. gmelini* (*Limonium gmelini*) in Russia and Norway.
Uromyces guayacurii Speg. Leaf rust on *S. brasiliensis* (*Limonium brasiliense*) in Argentina.
STELLARIA. ALSINE Ag. Annual or perennial herbs, mostly weeds.
Aecidium stellariae Kirch. Leaf rust on *S. graminea* in Bohemia.
Ascochyta stellariae Fautr. On leaves of *S. graminea* in France.
Fabraea cerastiorum (Fr.) Rehm. See Cerastium.
Isariopsis alborosella (Desm.) Sacc. On leaves of *S. aquatica*, *S. graminea*, *S. media*, *S. nemorum*, *Cerastium pumilum*, and *C. vulgatum* in Japan and Europe.

STELLARIA—Continued.
Isariopsis stellariae Trail. Indefinite brown spots on *S. graminea* in Scotland.
Mycosphaerella isariphora (Desm.) Johan. On leaves of *Stellaria* spp. in Siberia and Europe.
Omphalospora stellariae (Lib.) Theiss. and Syd. Shiny black stromata on leaves and stems of *S. holostea*, *S. mochringia*, and *S. nemorum* in Siberia and Europe.
Ovularia stellariae (Rabh.) Sacc. On leaves of *S. nemorum* in Russia, France, Switzerland, Yugoslavia, and Germany.
Peronospora media Gäum. Downy mildew on leaves of *S. media* and *S. nemorum* in Europe and Japan.
Peronospora parva Gäum. Downy mildew on leaves of *S. graminea*, *S. holostea*, and *S. uliginosa* in Europe.
Phyllosticta holosteae Allesch. On leaves of *S. holostea* and *S. uliginosa* in Great Britain and Germany.
Phyllosticta holosteicola Oud. Gray leaf spots on *S. holostea* in Holland.
Placosphaeria stellariae (Lib.) Sacc. On leaves and stems of *S. holostea* and *Dianthus monspessulanus* in Denmark, France, Italy, and Germany.
Puccinia detonsa Arth. and Holw. Leaf rust on *S. ovata* in Costa Rica and Guatemala.
Ramularia stellariae Rab. On leaves of *S. nemorum* in France.
Septoria henslowiana Sacc. Indefinite pale-ochraceous leaf spots on *S. media* in Malta.
Septoria paraphysoides Speg. On leaves and stems of *S. debilis* in Chile.
Synchytrium stellariae Fckl. Galls on leaves and stems of *S. media* and *S. nemorum* in Brazil, Argentina, Dalmatia, Denmark, and Germany. Reported from Mississippi.
Uromyces stellariae Syd. Dark-brown leaf rust on *S. kotschyana* in Persia.
Ustilago duriaeana Tul. See Cerastium.
STENANDRIUM. GERARDIA Ag. Stemless or short-stemmed acanthaceous herbs.
Aecidium cystopoides Speg. Leaf rust on *S. dulce* in Argentina.
Puccinia stenandrii Diet. and Neg. Golden and brown rust pustules on leaves of *S. dulce* in Chile.
Uredo stenandrii Speg. Leaf rust on *S. trinerve* in Argentina.
STENOCARPUS. CYBELE Ag. Tropical trees.
Phyllosticta stenocarpi Tassi. Irregular brown leaf spots on *S. sinuatus* in Italy.
STENORRHYNCHUS. See Orchidaceae.
STEPHANIA. Climbing shrubs.
Trabutia stephaniae Rac. Circular shiny black stromata on leaves of *S. capitata* in Java.
STEPHANOTIS. Twining, glabrous tropical shrubs.
Phyllosticta stephanotidis Grove. Circular to irregular gray-white leaf spots with dark-brown margins on *S. floribunda* in Great Britain.
STERCULIA. BOTTLE TREE. Ornamental and economic trees.
Ascochyta sterculiae Tassi. Angular to irregular gray-white to dull-brown leaf spots on *S. diversifolia* (*Brachychiton diversifolium*) in Italy.
Dothidasteroma maculosum (B. and Br.) v. Hoeh. Circular brown stromata on leaves of *S. alata* (*Pterygata alata*) in Ceylon.
Gloeosporium rhodospermum Delac. Brown leaf spots on *S. acuminata* in central Africa.
Guignardia sterculiae Rehm. On *S. foetida* in the Philippines.
Phyllosticta sterculiae Wint. Angular to irregular ochraceous leaf spots on *S. acerifolia* (*Brachychiton acerifolium*) and *S. heterophylla* in Queensland and Portugal.
Phyllosticta sterculicola Trav. Large gray-white leaf spots on *S. frondosa* in Italy.
Rosellinia bunodes B. and Br. See Citrus.
STEREOSPERMUM. Tropical evergreen trees with large begonialike flowers.
Phakopsora erythraea Sacc. Black leaf rust on *S. dentatum* in Abyssinia.
Uredo stereospermi Syd. Leaf rust on *S. chelonioides* in Ceylon.
STEVIA. Tropical shrubs.
Aecidium steviae P. Henn. Leaf rust on *S. urticifolia* in Brazil.
Coleosporium reichei Diet. Leaf rust on *Stevia* sp. in Mexico.
Coleosporium steviae Arth. Golden rust pustules on leaves of *S. lucida*, *S. monardaefolia*, *S. reglensis*, *S. rhombifolia*, *S. salicifolia*, *S. subpubescens*, *S. trachelioides*, and *S. viscida* in Mexico and Guatemala.
Puccinia rosea Roth. See Ageratum.
STIGMAPHYLLON. AMAZON VINE. Tropical woody vines.
Mycosphaerella stigmaphylli Rangel. On leaves of *S. ciliatum* in Brazil.
Phyllosticta stigmaphylli Speg. Circular brown leaf spots on *S. littorale* in Argentina.
Puccinia inflata Arth. Brown leaf rust on *S. lingulatum*, *S. periplocifolium*, and *S. sagraeanum* in Porto Rico and Cuba.
Puccinia insueta Wint. Brown to black rust pustules on leaves of *S. jatrophaefolium* and *S. littorale* in Brazil, Uruguay, and Ecuador.
STILLINGIA. CHINESE TALLOW TREE. Tropical American shrubs and herbs.
Cercospora sebiferae Pat. On leaves of *S. sebifera* (*Sapium sebiferum*) in Indo-China.
STIPA. FEATHER GRASS. Perennial grasses.
Puccinia flavescens McAlp. Brown to black rust pustules on leaves of *S. flavescens*, *S. pubescens*, and *S. scabra* in Australia.
Puccinia hierochloae S. Ito. See Hierochloa.
Puccinia oligocarpa Syd. and Butl. Leaf rust on *Stipa* sp. in India.
Puccinia stipae-sibiricae S. Ito. Leaf rust on *S. sibirica* in Japan.
Puccinia volgensis Nawasch. Powdery brown rust pustules on leaves of *S. barbata* and *S. pennata* in Russia.
Septoria stipae Died. On leaves of *S. capillata* in Germany.
Sorosporium tumefaciens McAlp. Olivaceous to dark-brown smut sori involving entire panicles of *S. pubescens* and *Stipa* sp. in Australia.
Sphacelotheca macrochloae (Pat.) Maire. Smut on *S. tenacissima* in Tripoli.
Tilletia hypsophila Speg. Powdery brown masses of smut spores in ovaries of *S. caespitosa* and *S. tenuissima* in Argentina.
Uredo pencana Diet. and Neg. Brown leaf rust on *S. manicata* in Chile.
Urocystis stipae McAlp. Smut sori as elongated dark-colored streaks on leaves, sheaths, and stems of *S. luehmanni* in Australia.
Uromyces argentinus Speg. Yellow to cinnamon-brown rust pustules on leaves of *S. neesiana* in Argentina.
Uromyces mussooriensis Syd. Brown leaf rust on *S. sibirica* in India.
Ustilago comburens Ludw. Powdery black smut sori in culms and inflorescences of *Stipa* sp. in Australia.
Ustilago macrochloae Pat. Inflorescences of *S. tenacissima* in Algeria converted into masses of smut spores.
Ustilago nummularia Speg. Black smut sori in inflorescences of *Stipa* sp. in Argentina.

STIPA—Continued.
Ustilago stipae-barbatae Maire. Smut on *S. barbata* and *S. gigantea* in French North Africa.
Ustilago stiparum Speg. Olivaceous masses of smut spores in panicles of *Stipa* sp. in Chile.
Ustilago stipicola Speg. Powdery black smut sori in panicles of *S. filiculmis* and *S. setigera* in Argentina and Uruguay.
STIZOLOBIUM. See Mucuna.
STOBAEA. Shrubs or herbs.
Puccinia stobaeae McO. and var. **woodii** Syd. Yellow and dark-brown rust pustules on leaves of *S. membranifolia* and *S. speciosa* in the Union of South Africa.
STRANVAESIA. Shrubs grown for their handsome foliage and attractive fruit and flowers.
Aecidium stranvaesiae Syd. Leaf rust on *S. glaucescens* in India.
STRATIOTES. WATER SOLDIER. Perennial aquatic herbs.
Leptosphaeria stratiotis Oud. On leaves of *S. aloides* in Holland.
Phyllosticta aloidis Oud. On leaves of *S. aloides* in Holland.
Phyllosticta stratiotis Oud. Dull-brown leaf spots on *S. aloides* in Holland.
Septoria stratiotis Oud. On leaves of *S. aloides* in Holland.
STRELITZIA. BIRD-OF-PARADISE FLOWER. Perennial herbs.
Endodothella strelitziae (Cke.) Theiss. and Syd. Circular dull-black stromata on leaf spots which are wine-red beneath, on *S. regina* in the Union of South Africa.
STROBILANTHES. CONEHEAD. Acanthaceous ornamental herbs and shrubs.
Aecidium strobilanthes Barcl. Leaf rust on *Strobilanthes* sp. in the Philippines and India.
Corticium salmonicolor B. and Br. See Citrus.
Puccinia aggregata Syd. Brown rust pustules on sunken brown leaf spots on *S. barbatus* in India.
Puccinia polliniae Barcl. Yellow and brown to black rust pustules on leaf blades and petioles and stems of *S. cuspidatus*, *S. dalhousianus*, and *Pollinia nuda* in India and Indo-China.
STROPHANTHUS. Tropical shrubs.
Hemileia strophanthi Rac. Yellow rust pustules on *S. dichotomus* and *S. hispidus* in Gold Coast Colony.
STRYCHNOS. Shrubs and trees of economic importance, cultivated for their fruit and medicinal properties.
Meliola steniospora Hint. Subcircular black superficial fungus patches on leaves of *S. nux-vomica* in India.
Phyllosticta strychni Allesch. Subcircular ochraceous leaf spots with dark-brown margins on *S. stuhlmanni* in tropical Africa.
Puccinia lindaviana P. Henn. Dark-brown rust pustules on leaves of *S. henningsii* in tropical Africa and the Union of South Africa.
Uredo strychni U. Henn. Yellow leaf rust on *Strychnos* sp. in the Congo.
STYLIDIUM. CANDOLLEA Ag. Herbs or subshrubs.
Puccinia stylidii McAlp. Orange-yellow and dark-brown to black rust pustules on leaves of *S. graminifolium* in Tasmania.
STYRAX. SNOWBELL. Ornamental woody plants grown for their flowers.
Atichia millardeti Racib. See Cinnamomum.
Monopus pulverulentus (B. and C.) Theiss. and Syd. Gray-black stromata on leaves of *Styrax* sp. in Cuba.
Pucciniastrum styracinum Hirats. Leaf rust on *S. japonica* and *S. obassia* in Japan.
Schweepia guaranitica Speg. On *S. leprosum* and *S. parvifolia* in Brazil.
SUTHERLANDIA. Tropical shrubs grown for their flowers.
Stigmatula sutherlandiae (K. and Cke.) Syd. On leaves of *Sutherlandia* sp. in the Union of South Africa.
SWERTIA. Erect perennial and annual herbs grown in borders and rock gardens.
Albugo swertiae Berl. and Kom. Small white powdery pustules on leaves of *S. connata* in Manchuria and Russia.
Septoria swertiae Pat. Circular rufous leaf spots on *Swertia* sp. in China.
Uredo ophelliae Syd. Brown rust on leaves and stems of *S. angustifolia* in India.
SWIETENIA. MAHOGANY. Tropical timber trees.
Tylenchus mahogani Cobb. This nematode is found in the bark tissues of *S. mahogani* in Barbados, probably parasitic and capable of causing injury.
SYMPHORICARPOS. SNOWBERRY. Ornamental shrubs.
Ascochyta grandispora Kab. and Bub. Subcircular ochraceous to brown leaf spots on *S. orbiculatus* in Bohemia.
Ascochyta symphoriae Kab. and Bub. Circular to irregular spots on leaves of *Symphoricarpos* sp. in Bohemia and France. *A. symphoriae* Br. and Har. has priority.
Ascochyta symphoricarpi Pass. On branches of *S. albus* (*S. racemosus*) in Italy and France.
Heterosporium symphoricarpi Ranoj. On branches of *S. albus* (*S. racemosus*) in Yugoslavia.
Phyllosticta symphoricola Sacc. and March. Leaf spots on *S. cinerascens* in Belgium.
SYMPHYOSTEMUM. Bulbous plants.
Uromyces symphyostemi Speg. Brown linear rust pustules on leaves of *S. narcissoides* in Patagonia.
SYMPHYTUM. COMFREY. Erect, often hispid, herbs.
Aecidium asperifolii Pers. Leaf rust on *S. tuberosum* in Austria.
Aecidium symphyti Thuem. Leaf rust on *S. tuberosum* in Spain and Dalmatia.
Cercospora agnostoica Speg. Subcircular pale-brown leaf spots on *S. asperrimum* in Brazil.
Cylindrosporium myosotidis Sacc. See Myosotis.
Entyloma serotinum Schroet. See Borago.
Melampsorella symphyti Bub. Powdery brown rust pustules on leaves of *S. bulbosum*, *S. cordatum*, *S. ibericum*, *S. officinale*, *S. tauricum*, and *S. tuberosum* in Europe. The aecial stage occurs on the needles of *Abies pectinata*.
Ovularia asperifolii Sacc. and var. **symphyti-tuberosi** Allesch. On leaves of *S. officinale* and *S. tuberosum* in Germany.
Ovularia farinosa (Ron.) Sacc. On leaves of *S. officinale* in Germany and Russia.
Peronospora symphyti Gäum. Downy mildew on leaves of *S. bulbosum*, *S. cordatum*, and *S. tuberosum* in southern Europe.
Physoderma speciosum Schroet. Brown areas on leaf blades and petioles and stems of *S. officinale* in Silesia and Germany.
Puccinia bromina Eriks. See Bromus.
Ramularia symphyti-tuberosi (Allesch.) Jaap. On leaves of *S. tuberosum* in Dalmatia. Possibly the same as *Ovularia farinosa*.

SYMPLOCOS. Sweetleaf. Shrubs grown chiefly for their attractive flowers and fruits.
Cocconia placenta (B. and Br.) Sacc. Dull-black stromata on brown leaf spots on *S. spicata* and *Pavetta indica* in Ceylon.
Exobasidium indicum Syd. and Butl. Sordid white galls on leaves of *S. theaefolia* and *Symplocos* sp. in India and Ceylon.
Exobasidium symploci-fasciculatae Rac. Circular to ovate spots on *S. fasciculata* in Java.
Exobasidium symploci-japonicae Kus. Distorts young buds of *S. japonica*, *S. lucida*, and *Maba buxifolia* in Japan.
Fomes pseudoferreus Wakef. See Hevea.
Mycosphaerella bhauria (Cke.) Lind. On leaves of *S. spicata* in India and Malaya.
Phacidium symplocinum Syd. On leaves of *Symplocos* sp. in India.
Phyllachora symploci Pat. Black stromata on leaves of *S. japonica*, *S. lucida*, *S. neriifolia*, and *S. thwaitesii* in Indo-China, Japan, and Australia.
Physalospora symploci Rac. Circular to irregular yellow leaf spots on *S. fasciculata* in Java.
Rhytisma austro-caledonicum Crié. Black irregular stromata on leaves of *S. arborea*, *S. caerulescens*, *S. gracilis*, *S. lenormandiana*, *S. mandiana*, and *S. vieillardi* in New Caledonia.
Rosellinia arcuata Petch. See Thea.
Septoria sydowii Henn. and Sacc. Small subcircular to irregular gray-white leaf spots on *S. crataegoides*, *S. myrtacea*, and *S. prunifolia* in Japan and Brazil.
Septoria symploci Allesch. and P. Henn. On *Symplocos* sp. in Brazil.
Trochila symploci P. Henn. On leaves of *S. japonica* in Japan.
Uredo inouyei P. Henn. and Shir. A rust deforming leaves and branches of *Symplocos* sp. in Japan.

SYRINGA. Lilac. Shrubs cultivated for their flowers.
Ascochyta orientalis Bond. Confluent gray leaf spots with dark-brown margins on *S. vulgaris* in Russia.
Ascochyta syringae Bres. On leaves of *S. chinensis* and *S. vulgaris* in Russia, Denmark, Italy, and Germany.
Ascochyta syringicola Bub. and Kab. Circular to angular dull-yellow leaf spots on *S. vulgaris* in Bohemia.
Ascochytula syringae Jaap. On fruit capsules of *S. vulgaris* in Germany.
Glocosporium syringae Allesch. Irregular ochraceous to brown leaf spots, often marginal, or involving entire leaf blades on *S. alba* and *S. vulgaris* in Russia and Germany.
Helminthosporium syringae Kleb. Irregular brown areas on leaves, gradually involving entire area of the blades on *S. vulgaris* in Great Britain and Germany.
Heterosporium syringae Oud. Large irregular gray-brown blotches on leaves of *S. vulgaris* in Spain, Italy, France, Holland, and Germany.
Phyllosticta superflua Oud. Circular, then confluent, pale ashen-brown leaf spots on *S. vulgaris* in Holland.
Phyllosticta syringophila Oud. On leaves of *S. vulgaris* in Holland.
Phytophthora syringae Kleb. This downy mildew causes a leaf-blight and die-back of *S. persica*, *S. vulgaris*, and other woody plants in Europe, including *Acer* sp., *Aesculus* sp., *Alnus* sp., *Corylus* sp., *Crataegus oxyacantha*, *Forsythia viridissima*, *Jasminum nudiflorum*, *Ligustrum vulgare*, *Malus*, *Prunus cerasus*, *P. domestica*, *Pyrus communis*, and *Tilia* sp.
Pseudomonas syringae v. Hall. Large black blotches on young leaves and twigs of *S. vulgaris* in Holland, Great Britain, and Germany. The organism is said to be able to attack also *Malus*, *Populus*, *Prunus*, and *Pyrus*.
Septoria syringae Sacc. and Speg. Dull-yellow leaf spots on *S. chinensis* and *S. vulgaris* in Italy and France.

SYZGIUM. Tropical trees and shrubs.
Atichia miliardeti Racib. See Cinnamomum.
Lizoniella syzgii (Rac.) Sacc. and Trott. Subcircular black leaf spots on *Syzgium* sp. in Java.

TABEBUIA. Ornamental evergreen trees grown for their showy flowers.
Mycosphaerella tabebuiae Miles. Amphigenous small white transparent leaf spots with brown-purple margins on *T. haemantha* in Porto Rico.
Phyllachora sordida Speg. Black subcircular stromata on pale, indefinite leaf spots on *Tabebuia* sp. in Brazil.
Phyllachora tabebuiae (Rehm.) Theiss and Syd. Shiny black stromata on small dark-brown leaf spots on *T. leucoxylon* in Brazil.
Physalospora tabebuia Rehm. On leaves of *T. leucoxylon* in Brazil.
Prospodium bahamense Arth. Leaf rust on *T. bahamensis* and *T. leucoxylon* in the Bahamas.
Prospodium suppressum Arth. Leaf rust on *Tabebuia* sp. in Trinidad.

TABERNAEMONTANA. Crape jasmine. Evergreen trees and shrubs.
Aecidium ceraceum B. and Br. Leaf rust on *T. dichotoma* in Ceylon, Brazil, and Argentina.
Aecidium ochraceum Speg. Indefinite pale-ochraceous leaf spots on *T. australis* in Paraguay.
Caeoma apocyni McAlp. Brownish-yellow rust pustules on leaves of *T. orientalis* in Australia.
Cercospora tabernaemontanae Syd. On leaves of *T. pandocaqui* and *Tabernaemontana* sp. in Malaya and the Philippines.
Fomes pectinatus (Kl.) Cke. Attacks *T. sphaerocarpa* in Java.
Glocosporium holstii P. Henn. Anthracnose on leaves of *T. dichotoma* in Ceylon.
Hemileia jurensis Syd. Pale-yellow leaf rust on *Tabernaemontana* sp. in Brazil.
Puccinia cookei DeT. Yellow to brown rust pustules on leaves of *T. ventricosa* in India and the Union of South Africa.
Puccinia engieriana P. Henn. Leaf rust on *T. heyneana* and *T. pandacaqui* in India and the Philippines.
Puccinia tabernaemontanae B. and Br. Leaf rust on *T. dichotoma* in Ceylon.
Seynesia fusco-paraphysata P. Henn. On leaves of *Tabernaemontana* sp. in Tanganyika.
Uredo mauiensis Syd. Brown leaf rust on *T. coronaria* and *T. polygama* in the Philippines.

TACCA. Perennial herbs with tuberous or creeping rhizomes.
Cercospora sp. On leaves of *T. pinnatifida* in Fiji.
Cercosporina taccae Syd. Circular brown leaf spots on *T. palmata* in the Philippines.

TACSONIA. Tendril-climbing vines resembling *Passiflora*.
Seynesia lagerheimii Rehm. On leaves of *Tacsonia* sp in Ecuador.

TAGETES. Marigold. Garden annuals.
Puccinia tageticola Diet. and Holw. Powdery brown to black rust pustules on leaves of *T. erecta*, *T. filifolia*, *T. lucida*, *T. micrantha*, *T. patula*, *T. microglossa*, and *T. tenuifolia* in Porto Rico, Mexico, Costa Rica, and northern South America.

TAINIA. See *Orchidaceae*.

TAMARINDUS. TAMARIND. Tropical leguminous tree. Cultivated for ornament and fruit.
Exosporium tamarindi Syd. On leaves of *T. indica* in India.
Gloeosporium tamarindi P. Henn. Anthracnose on leaves of *T. indica* in Tanganyika.
Mycosphaerella tamarindi P. Henn. Dull-brown leaf spots on *T. indica* in Tanganyika.
TAMARIX. Ornamental shrubs or trees, cultivated for their graceful foliage and showy clusters of white or pink flowers.
Pyrenopeziza tamaricis (Roum.) Sacc. See Myricaria.
TAMONEA. Tropical shrubs.
Gloeosporium cyanophylli P. Henn. Dull-brown leaf spots on *T.* (*Cyanophyllum*) *magnifica* in Germany.
TAMUS. Black bryony. Herbaceous perennials with tuberous roots related to Dioscorea.
Cercospora scandens Sacc. and Wint. and var. **longissima** Gz. Frag. Small subcircular dull-brown leaf spots with yellow margins on *T. communis* in Italy, Spain, and Russia.
Cercosporella tamicola Lamb. and Fautr. Irregular gray leaf spots on *T. communis* in Italy and France.
Phyllosticta tami Sacc. Subcircular to oblong brown leaf spots with red margins on *T. communis* in Italy.
Septoria sarmentitia Sacc. On stems of *T. communis* in France.
Septoria tami West. Subcircular to angular brown leaf spots with purple-brown margins on *T. communis* in Belgium.
TANACETUM. TANSY. Annual or perennial herbs with small yellow flower heads.
Peronospora tanaceti Gäum. Downy mildew on leaves of *T. vulgare* in Europe.
Puccinia balsamitae (Strauss.) Rabh. See Pyrethrum.
Puccinia seriata Syd. Black rust sori on leaves and stems of *Tanacetum* sp. in Kurdistan.
Puccinia tanaceti DC. Dark-brown to black rust pustules on leaves of *T. corymbosum* and *T. vulgare* in Europe.
Ramularia tanaceti Lind. Brown spots, occupying most of leaf area of *T. vulgare* in Denmark and Spain.
Septoria tanaceti Niessl. Indefinite irregular often confluent, dull-brown leaf spots on *T. vulgare* in Bulgaria, Bohemia, and France.
Septoria tanaceti-macrophyli Bub. Elongate or irregular, often confluent, dull-yellow to brown leaf spots on *T. macrophyllum* in Central Europe.
TARAXACUM. LEONTODON. Ag. DANDELION. Weedy perennials, sometimes cultivated as a vegetable crop.
Cercosporella augustana Ferr. Irregular ochraceous leaf spots on *T. officinale* in Italy.
Erysiphe taurica Lév. See Althaea.
Phyllosticta taraxaci Höll. Irregular ashen black-bordered leaf spots on *T. officinale* in Hungary.
Protomyces pachydermus Thuem. On peduncles and leaves of *T. officinale* in Japan, Scandinavia, Italy, Switzerland, Austria, and Germany.
Puccinia decipiens Mass. Powdery black rust pustules on leaves of *T. canescens* and *T. montanum* in Persia and Kurdistan.
Puccinia kurdistani Cke. Brown leaf rust on *T. glaucum* in Kurdistan.
Puccinia silvatica Schroet. Leaf rust on *T. dens-leonis, T. officinale, Crepis biennis, Lappa officinalis, Senecio fuchsii, S. nemorensis, S. sarracenicum,* and *Carex* spp. in Siberia and Russia.
Puccinia taraxaci-bithynici R. Maire. Brown leaf rust on *T. bithynicum* in Asia Minor.
Puccinia variabilis Grev. Yellow to dark-brown rust pustules on leaves of *T. collinum, T. officinale* and *T. palustre* in Siberia and Europe.
Ramularia lampsana (Desm.) Sacc. See Cichorium.
Septoria taraxaci Höll. Circular ashen, black-bordered leaf spots on *T. officinale* in Hungary. Sydow has given the same name to a species on *T. officinale* in Japan.
TAXUS. YEW. Ornamental coniferous trees.
Gloeosporium cavarae (Mont.) Sacc. and Syd. On needles of *T. baccata* in Italy.
Gloeosporium taxicolum Allesch. On needles of *T. baccata* in Denmark, France, and Germany.
Lophodermium abietis Rostr. See Picea.
Macrophoma taxi Berl. and Vogl. Causes leaves of *T. baccata* in Europe to turn brown.
Phyllosticta taxi Höll. Ochraceous spots on needles of *T. baccata* in Hungary.
TECOMA. TRUMPET BUSH. Ornamental tropical shrubs and small trees grown for their showy flowers. See also Tabebuia.
Aecidium simplicius Arth. and Johnst. Leaf rust on *T. pentaphylla* in Cuba.
Cercospora leprosa Speg. On leaves of *T. arborea* in Brazil.
Cercosporina stenolobiicola Speg. Subcircular definite dull-rufous leaf spots on *T.* (*Stenolobium*) *stans* in Argentina.
Cylindrosporium aureum Speg. Indefinite dull-brown leaf spots on *Tecoma* sp. in Brazil.
Munkiella guaranitica Speg. On leaves of *Tecoma* sp. in Brazil and Paraguay.
Ovulariopsis obclavata Wakef. On leaves of *T. leucoxylon* in Barbados.
Phyllosticta erysiphoides Sacc. On leaves of *T.* (*Bignonia*) *radicans* in France.
Phyllosticta henriquesii Thuem. On leaves of *T.* (*Bignonia*) *radicans* in Italy.
Phyllosticta tecomae Sacc. Dull-brown to ochraceous leaf spots on *T.* (*Bignonia*) *radicans* in Italy and Portugal.
Prospodium appendiculatum (Wint.) Arth. Leaf rust on *T. mollis* and *T.* (*Stenolobium*) *stans* in Porto Rico, Cuba, Costa Rica, Mexico, and Trinidad.
Prospodium bahamensis Arth. See Tabebuia.
Prospodium plagiopus (Mont.) Arth. Brown rust pustules on leaves of *T. lepidota* in Cuba.
Puccinia exitiosa Syd. and Holw. Brown leaf rust on *T. mollis* in Mexico.
Puccinia maligna Diet. Leaf rust on *T. stans* in Mexico.
Uredo longiaculeata P. Henn. Powdery dull-brown to ochraceous rust pustules on leaves of *Tecoma* sp. in Brazil.
TECOPHILAEA. CHILIAN CROCUS. Bulbous plants.
Puccinia roseanae Arth. Leaf rust on *T. roseana* in Peru.
TECTARIA. Ferns.
Uredo gymnogrammes P. Henn. See Dryopteris.
TECTONA. TEAK. Valuable timber trees.
Aecidium effusum Niessl. Leaf rust on *T. grandis* in India.
Heart-rot. A heart-rot of *T. grandis* due to an undetermined fungus is reported from Java. The heartwood is stained dark brown and finally rots. The tops of diseased trees die.
Uncinula tectonae Salm. Powdery mildew on upper leaf surfaces of *T. grandis* in India.
Uredo tectonae Racib. Brown leaf rust on *T. grandis* in Java, Indo-China, Ceylon, and India.
TELLIMA. FALSE ALUMROOT. Erect, hardy, herbaceous perennials.
Phyllosticta tellimae Tassi. Subcircular, brown leaf spots on *T. grandiflora* in Italy.

TEPHROSIA. CRACCA Ag. HOARY PEA. Perennial herbs or shrubs, some species cultivated for forage.

Corticium salmonicolor B. and Br. See Citrus.

Fomes pseudoferreus Wakef. See Hevea.

Ophiodothella edax (Br. and B.) v. Hoeh. Shiny black stromata on leaves of *T. suberosa* in Ceylon and the Union of South Africa.

Poria hypobrunnea Petch. See Hevea.

Ravenelia caulicola Arth. Brown to black powdery rust pustules on stems of *T. cinerea* in the Bahamas.

Ravenelia irregularis Arth. Brown rust pustules on leaves of *T. macrantha* in Mexico.

Ravenelia stictica B. and Br. Yellow to brown rust pustules on leaves of *T. suberosa* in India, Ceylon, and the Union of South Africa.

Ravenelia talpa (Long) Arth. Brown leaf rust on *T. talpa* in Mexico.

Ravenelia tephrosiae Kalchbr. Yellow-brown to dark-brown rust pustules on leaves of *T. macropoda* in the Union of South Africa.

Rosellinia arcuata Petch. See Thea.

Uredo tephrosiae Rabh. Leaf rust on *T. purpurea* in Ceylon.

Uredo tephrosiicola P. Henn. Brown leaf rust on *T. toxicaria* and *Tephrosia* sp. in Peru and Brazil.

TERAMNUS. Tropical trees.

Cercospora maricaoensis Young. Diffuse, brown leaf spots on *T. uncinatus* in Porto Rico.

Physopella concors Arth. See Phaseolus.

Uredo teramni Mayor. Leaf rust on *T. uncinatus* in Colombia.

Uromyces cologaniae Arth. Brown leaf rust on *T. uncinatus* in Porto Rico.

Uromyces vanderystii P. Henn. Yellow-brown leaf rust on *T. labialis* in Congo.

TERMINALIA. INDIA ALMOND. ALMENDRO. SPANISH ALMOND. Tropical trees with many economic uses.

Cercospora catappae P. Henn. Circular dark-brown leaf spots on *T. catappa* in Zanzibar and the Philippines.

Fomes lamaoensis Murr. See Hevea.

Gnomoniella catappae Koord. Large indefinite angular dull-brown leaf spots on *T. catappa* in Java.

Phyllosticta terminaliae P. Henn. Circular brown to olivaceous leaf spots with red margins on *T. baumii* and *T. catappa* in Brazil and the Union of South Africa.

Ramularia catappae Rac. Circular ashen leaf spots with dull-red margins on *T. catappa* in the Philippines.

Uredo terminaliae P. Henn. Ochraceous rust pustules on leaves of *T. argentea* in Brazil.

TETRAGONIA. NEW ZEALAND SPINACH. Herbs cultivated as vegetables.

Cercosporina tetragoniae Speg. Subcircular leaf spots on *T. expansa* in Argentina and Russia.

Puccinia tetragoniae McAlp. Yellow to brown rust pustules on leaves of *T. implexicoma* in Australia.

Tuberularia cacao McAlp. On leaf blades and petioles of *T. implexicoma* in Australia.

TETRAGONOLOBUS. Leguminous shrubs related to Lotus.

Ovularia deusta (Fckl.) Sacc. See Lathyrus.

Peronospora tetragonolobi Gäum. Downy mildew on leaves of *T. siliquosus* in central Europe.

Uromyces genistae-tinctoriae Pers. See Caragana.

TETRAPANA. See Fatsia.

TEUCRIUM. GERMANDER. Herbs and shrubs.

Ascochyta teucrii Lasch. On leaves of *T. scordium* in Germany.

Erysiphe taurica Lév. See Althaea.

Ovulariopsis teucrii Jaap. Diffuse yellow areas on leaves of *T. chamaedrys* in Dalmatia.

Peronospora teucrii Gäum. Downy mildew on leaves of *T. botrys* in Bohemia.

Phyllosticta infuscata Wint. Subcircular to irregular dull-brown leaf spots on *T. scordium* in Portugal.

Phyllosticta obliqua Tassi. Dull-brown zoned leaf spots on *T. flavum* and *T. pulverulentum* in Italy.

Phyllosticta teucrii Sacc. and Speg. Grayish-white leaf spots on *T. chamaedrys* in Italy.

Puccinia annularis (Strauss.) Schlecht. Brown rust pustules on leaves of *Teucrium* spp. in Europe.

Puccinia constricta (Lagh.) Bub. Brown leaf rust on *T. montanum* in Russia and Germany.

Puccinia istriaca Syd. Powdery dark-brown rust pustules on leaves and twigs of *T. aureum* and *T. polium* in Spain and the Balkans.

Puccinia majoricensis R. Maire. Leaf rust on *T. capitatum* in the Balearic Islands.

Puccinia teucrii Biv. Bernh. Dark-brown rust pustules on leaves of *T. fruticans* and *T. polium* in Morocco, Algeria, Syria, Spain, and Italy.

Ramularia microspora Thuem. Brown spots on leaves of *T. chamaedrys* in Austria and Italy.

Septoria scorodoniae Pass. Small subcircular reddish to ochraceous leaf spots on *T. scorodonia* in Belgium, France, and Italy.

Septoria teucrii Sacc. Circular brown to gray leaf spots with dark-purple margins on *T. chamaedrys* in France.

Taphrina candicans Sacc. On leaves of *T. chamaedrys* in Europe.

THALIA. Perennial marsh or aquatic herbs.

Puccinia cannae (Wint.) P. Henn. See Canna.

Puccinia thaliae Diet. Powdery brown to black rust pustules on leaves of *T. dealbata* in Brazil.

THALICTRUM. MEADOW RUE. Herbs, sometimes cultivated.

Cercospora thalictri Thuem. Irregular, often confluent, violet-purple leaf spots on *T. flavum*, *T. glaucum*, *T. jacquinianum*, and *T. speciosum* in Portugal.

Haplobasidium thalictri Eriks. Dark-brown leaf spots on *T. flavum* in Sweden.

Marsonia clematidis All. See Clematis.

Oedemium thalictri Jaap. Gray spots on leaves of *T. minus* in Germany.

Phyllosticta leucosticta C. Mass. Small angular spots on leaves of *T. aquilegifolium* in Italy.

Phyllosticta thalictri West. Angular to irregular leaf spots on *T. flavum* and *T. minus* in Belgium and Germany.

Plasmopara alpina (Johans.) Blytt. Downy mildew on leaves of *T. alpinum* in Scandinavia.

Pseudopeziza repanda Sow. On *T. minus* in Japan.

Puccinia borealis Juel. See Agrostis.

Puccinia castagnei Schroet. Leaf rust on *T. angustifolium* in France, Belgium and Switzerland.

Puccinia rhytismoides Johans. Black rust pustules on leaves and stems of *T. alpinum* in Sweden and Norway.

Puccinia septentrionalis Juel. See Polygonum.

Puccinia sommerfeltii Johans. Dark-brown, powdery rust pustules on leaves of *T. alpinum* and *Polygonum viviparum* in Alaska, Newfoundland, and Europe.

THEA. TEA. Broad-leafed evergreen shrubs cultivated for their leaves and flowers.

Aglaospora aculeata Petch. Causes blight of stems of *Thea* (cult.) in Ceylon.

Ascochyta theae Hara. On stems of *Thea* (cult.) in Japan and Ceylon.

Bacillus theae Hori and Bokura. The "red scaled" disease of *Thea* (cult.) is known only from Japan. On fully developed leaves small pale-brown circular spots occur, which rapidly increase in size to form large confluent, irregular, reddish-brown to black patches. Infected leaves wither and fall. The disease spreads from the leaves to the buds and twigs. The buds turn red-brown and then black. Green twigs turn black, wither, and die back for a length of 4 to 5 inches.

Cercospora theae v. B. de H. Circular purplish-red leaf spots with indefinite yellow-green borders on *Thea* (cult.) in Java, India, and Ceylon. The spots finally become white with narrow purple-red borders.

Cercosporella theae Petch. Numerous, small, dark-brown to black, subcircular then irregular spots on young tea leaves. The spots coalesce, destroying the leaves. On older leaves large diffuse chocolate-brown, finally gray, patches occur with narrow purplish-black margins. Sunken purple patches appear on green twigs. Additional hosts are *Acacia decurrens, Eucalyptus dealbata, E. diversicolor, E. melanoxylon, E. paniculata,* and *E. robusta* in Ceylon.

Chaetophoma penzigi Sacc. On leaves of *Thea* (cult.) in Italy and the Caucasus.

Colletotrichum camelliae Mass. Brown blight or anthracnose on leaves and twigs of *Thea* (cult.) in Japan, India, Ceylon, Malaya, Java, Formosa, Caucasia, and Uganda. The leaf spots are at first yellowish-green, becoming red-brown or dark brown with first yellow-green margins, and finally gray. Young leaves are blackened and sometimes soft rotted. Twigs of unthrifty plants are at times attacked, becoming hard, gray, and stunted.

Corticium sp. Black rot of tea (*Thea*) in Ceylon is caused by a *Corticium* distinct from *C. theae* of Java. The Ceylon fungus or similar fungi also attack *Calophyllum burmanii, Hemidesmus indicus, Oxyanthus tubiflorus, Pithecolobium dulce,* and *Zinnia* sp.

Corticium salmonicolor B. and Br. See Citrus.

Corticium theae Bern. Black rot of tea (*Thea*) in Java, India, and Sumatra is characterized by the drying out and blackening of the leaves and die-back of the twigs due to the fungus, which forms brown fungus strands over infected organs. The disease is one of the thread-blight diseases.

Didymostibe coffeae Zimm. Causes a die-back of plucked *Thea* branches in Ceylon.

Diplodia cacaoicola P. Henn. See Theobroma.

Discosia theae Cav. Circular definite, often confluent, black leaf spots on *Thea* (cult.) in Italy and the Caucasus.

Exobasidium camelliae Shir. and var. **gracilis** Shir. Leaves and leaf-shoots are attacked, becoming thick and fleshy or gall-like. Inflorescences are also deformed and reduced to irregular sphaerical masses. On *T.* (*Camellia*) *sasanqua* and *T. japonica* in Japan.

Exobasicium reticulatum Ito and Saw. Attacks *Thea* (cult.) in Japan and Formosa in a similar manner to the following species, except that the leaves are not blistered.

Exobasidium vexans Mass. The blister blight is a serious disease of cultivated *Thea* in India and probably in Formosa. It has also been found on *Rhododendron* spp. Numerous translucent spots appear on the leaves from one-fifth to 1 inch in diameter, red below, pale-green, yellowish, or pink above. The upper surfaces gradually become depressed into shallow cavities. The upper concave surfaces are smooth, shining, and pale-green, the lower surfaces dull-gray to white and powdery. Petioles and stems may also be attacked, the latter dying back. As many as 20 blisters may occur on a single leaf, remaining separate or at times coalescing.

Fomes lamaoensis Murr. See Hevea.

Fomes lignosus Klotzsch. See Hevea.

Fomes pseudoferreus Wakef. See Hevea.

Fusicladium theae K. Hara. Velvety-black fungus patches on leaves of *T. sinensis* in Japan.

Gloeosporium theae Zimm. Large red-brown, then ashen, leaf spots on *Thea* (cult.) in Tanganyika.

Gloeosporium theae-sinensis Miy. Large reddish-brown, then gray, leaf spots on *Thea* (cult.) and *T. sasanqua* in Japan. Probably identical with *Colletotrichum camelliae.*

Guignardia camelliae (Cke.) Butler. (*Laestadia theae* Rac.) This fungus causes the so-called "copper blight" of tea (*Thea*) in India, Ceylon, Java, and Malaya. In the early stages of the disease a peculiar coppery-colored sheen forms on the lower surfaces of the leaves, leaves so affected bending over, with the undersides outermost. Yellow-brown patches then appear, becoming finally gray and very brittle. Possibly the perfect stage of *Colletotrichum camelliae* Mass.

Helicobasidium tanakae Miy. See Morus.

Helminthosporium gigasporum B. and Br. On *Thea* (cult.) in Ceylon.

Hendersonia theae K. Hara. Dark-brown, then gray, leaf spots on *Thea* (cult.) in Japan.

Hendersonia theicola Cke. On leaves of *Thea* in Ceylon and the Caucasus.

Hypodermopsis theae K. Hara. Light reddish-brown circular to irregular, often confluent, patches on trunk and branches of *Thea* (cult.) in Japan.

Leptosphaeria hottai K. Hari. Circular to irregular large brown spots on trunks of *T. sinensis* in Japan.

Macrophoma theae Speschn. Subcircular gray-brown leaf spots on *Thea* (cult.) in the Caucasus.

Macrophoma theicola Petch. This fungus is reported as the cause of a canker of *Thea* (cult.) in Ceylon. Small, slightly sunken, dark patches first appear on the branches and develop into irregular sunken cankers.

Marasmius spp. Horsehair blight. See Theobroma.

Massaria theicola Petch. This fungus attacks the branches of the tea (*Thea*) plant in Ceylon, killing them gradually one by one. Individual branches may die slowly, the leaves withering and falling, or because of girdling a branch may be killed suddenly.

Mycosphaerella theae K. Hara. Large irregular dark-brown, then ashen, leaf spots on *Thea* (cult.) in Japan.

Nectria caneri Rutg. A wound parasite causing callused cankers on twigs, branches, and trunks of *Thea* sp. in India and Java.

Neottispora theae Saw. Irregular brown to ashen leaf spots with raised purplish-black margins on *Thea* (cult.) in Formosa.

Pestalozzia theae Saw. The gray blight of tea (*Thea sinensis*) occurs in India, Ceylon, Java, Formosa, and the Caucasus. The fungus produces subcircular to oval leaf spots which vary in size from one centimeter to almost the entire area of the leaf. The spots are dark-brown and concentrically zoned above, brighter beneath, with narrow greenish-yellow surrounding zones. Old spots become gray. Very young leaves when attacked are blackened and distorted. Twigs are also attacked at times, a die-back resulting.

Phaeosphaerella theae Petch. Small yellow leaf spots, circular, then angular, on *Thea* (cult.) in Ceylon. The centers of the spots turn gray or gray-brown and fall out, leaving irregular holes bordered by narrow brown zones.

Phoma theicola Petch. Subcircular to oval or angular bright red-brown leaf spots on *Thea* (cult.) in Ceylon.

THEA—Continued.

Phyllohendersonia theicola (Cke.) Tass. On leaves of *Thea* (cult.) in Caucasia.

Phyllosticta camelliae West. See Camellia.

Phyllosticta theae Speschn. Subcircular gray-white leaf spots on *T. assamica* and *Thea* (cult.) in Caucasia.

Physalospora neglecta Petch. Causes cankers on branches of *Thea* (cult.) in Ceylon.

Poria hypobrunnea Petch. See Hevea.

Protomyces theae Zimm. On roots of *Thea* (cult.) in Java.

Pseudocommis theae Speschn. Indefinite, often confluent, gray-brown leaf spots on *T. viridis* (*Thea sinensis*?) in Russia.

Rhizoctonia lamellifera Small. See Grevillea.

Rosellinia arcuata Petch. This fungus causes a rotting of the bark around the collar and on the larger roots, forming a white mycelial layer between the bark and wood. Above ground the fungus forms a layer of purple-gray, then black, mycelium around the stems up to a height of about 6 inches. Some plants, although girdled, continue growth, resulting in peculiar enlargements of stems down to the point of girdling. Diseased plants often wilt and die. The hosts in addition to tea (*Thea*) are *Capsicum annuum, Cinnamomum camphora, Erythrina* sp., *Grevillea robusta, Manihot glaziovii, Panax fruticosum, Strobilanthes* sp., *Symplocos obtusa*, and *Tephrosia candida* in Ceylon and India.

Rosellinia bunodes B. and Br. See Citrus.

Sclerotium zeylanicum (B. and Br.) Petch. Attacks seedlings of *Thea* (cult.), *Caladium* spp., and other economic plants in Ceylon.

Septobasidium acaciae Saw. See Acacia.

Septoria theae Cav. On leaves of *T. viridis* and *Thea* (cult.) in Italy and Russia.

Sillia theae K. Hara. Small dark-pink or gray spots appear on trunks and branches of *T. sinensis* in Japan. These spots increase until the infected trunk or branch is girdled. The disease is known as the "shark-skin" disease because of the shape of the stromata scattered over the cankered area.

Sphaerostilbe repens B. and Br. See Hevea.

Stibella theae Bern. (*Stilbum nanum* Mass.) Causes a die-back of branches of *Thea* (cult.) in Java.

Valsa theae K. Hara. Acts as a wound parasite of *Thea* (cult.) in Japan.

Venturia speschnewii Sacc. and D. Sacc. Indistinct brown leaf spots on *Thea* (cult.) in Caucasia.

White-stem blight. See Hevea.

Zukalia nantocpsis K. Saw. This species of sooty mold and others, including *Z. theae* Saw., *Scorias capitata* Saw., and *Capnodium footii* Berk. and Desm., occur on tea (*Thea*) leaves, injuring the commercial value of the leaves.

THELYMITRA. See Orchidaceae.

THEOBROMA. CACAO OR CHOCOLATE TREE. Tropical trees.

Aspergillus delacroixii Sacc. and Syd. Hastens the hardening and rot of pods of *T. cacao* in Colombia and the Philippines.

Ceratocarpia theobromae von Faber. Thick black fungus crust on leaves of *T. cacao* in Cameroon.

Colletotrichum brachytrichum Delacr. Broad gray-white leaf spots with brown margins on *T. cacao* in Trinidad and Ceylon.

Colletotrichum cradwickii Bancr. Anthracnose of pods of *T. cacao* in Jamaica and Porto Rico. Probably not distinct from *C. gloeosporioides*.

Colletotrichum incarnatum Zimm. Anthracnose on pods of *T. cacao* in Ceylon, Java, Belgian Congo, and Uganda, following *Phytophthora*.

Colletotrichum luxificum v. Hall. and Drost. This fungus was at one time assigned as the cause of the Surinam witches'-broom disease. See Marasmius perniciosus.

Colletotrichum theobromae Appel. and Str. Small black sunken areas on pods of *T. cacao* in central Africa.

Colletotrichum theobromicolum Delacr. Anthracnose on pods of *T. cacao* in the West Indies and Uganda. Most, if not all, of the various species of *Colletotrichum* reported as attacking leaves and pods of *T. cacao* can be referred to *C. gloeosporioides*. They are all more or less secondary in their parasitism, attacking trees weakened by adverse cultural conditions or following primary parasites such as *Phytophthora*.

Corticium salmonicolor B. and Br. See Citrus.

Diplodia cacaoicola P. Henn. This fungus is found on a wide range of tropical and subtropical plants and has been described under many names, among which are *D. rapax* Mass., *Botryodiplodia theobromae* Pat., *B. elastica* Petch., *Lasiodiplodia theobromae* (Pat.) Griff. and Maubl., *L. nigra* App. and Laub., and *Chaetodiplodia vanillae* Maubl. *Thyridaria tarda* Bancr. has been reported as the perfect stage. Among the many hosts are *T. cacao, Hevea brasiliensis, Vanilla planifolia, Ananas sativa, Albizzia* sp., *Carica papaya, Cajanus indicus, Citrus* spp., *Castilloa elastica, Cocos nucifera, Erythrina* sp., *Cinnamomum camphora, Coffea arabica, Ficus elastica, Grevillea robusta, Indigofera* spp., *Mangifera indica, Manihot utilissima, Nicotiana tabacum, Saccharum officinarum*, and *Thea sinensis*. Countries reporting the fungus are Porto Rico, Cuba, French and British West Indies, Trinidad, Brazil, northern South America, Java, India, Ceylon, Malaya, the Philippines, Fiji, and central Africa.

Circular brown spots appear on cacao pods, most frequently at the basal end, and, spreading rapidly, soon bring about complete rot of the pods. The fungus acts as a wound parasite for the most part. Twigs and branches are also attacked, causing a typical die-back and finally stag-headed condition of infected trees. In this phase of the disease, also, the fungus is not virulently parasitic, attacking through wounds or infecting trees weakened by overshading or other unfavorable cultural conditions. Where the progress of the fungus is slow, cankers of various sizes form. The action of the fungus on other hosts is the same as on *Theobroma*, a brown rot or soft rot (stem-end rot of *Citrus* fruits) of the fruit and a die-back or cankering of twigs and branches. *D. natalensis* Evans, which causes a typical stem-end rot and die-back of *Citrus* spp. in the Union of South Africa, Porto Rico, Cuba, and southern Florida, is probably not distinct.

Epicoccum theobromae Petch. On leaves of *T. cacao* in Ceylon.

Eutype crumpens Mass. Causes a rot of bark and wood of branches and trunks of *T. cacao, Ficus* spp., *Mangifera indica*, and *Myristica* sp. in Trinidad and the British West Indies. The fungus forms black shining carbonaceous raised stromatic patches on the rotted areas. Probably a wound parasite only.

Exoascus bussei v. Fab. This fungus causes a witches'-broom disease of *T. cacao* in Cameroon (Africa.) The brooms arise from an infected bud, which forms an abnormal fleshy branch with shortened internodes. From other buds at the base of this branch other abnormal branches arise, forming the broom. Such leaves as form are small and soon wither and die, remaining attached to the twigs. The brooms may persist for years, never flowering.

Exoascus theobromae Ritz. Bos. Assigned at one time as the cause of the Surinam witches'-broom disease. See Marasmius perniciosus.

Fomes lamaoensis Murr. See Hevea.

Fomes lignosus Klotzsch. See Hevea.

Fomes pseudo-ferreus Wakef. See Hevea.

Gloeosporium theobromicolum Vinc. Anthracnose on leaves and pods of *T. cacao* in Brazil

THEOBROMA—Continued.

Helminthosporium theobromae Turc. On leaves of *T. cacao* in Italy.

Macrophoma vestita Prill. and Delacr. Said to attack the roots of *T. cacao* in tropical America.

Marasmius spp. The so-called "horse-hair" blights and thread blights occur on *T. cacao*, *Thea* (cult), *Hevea brasiliensis*, *Myristica fragrans*, and many other tropical shrubs and trees. This type of disease has been reported from Ceylon, west Africa, the West Indies, Trinidad, British Guiana, and Brazil, and doubtless occurs in all tropical regions. Among the species of fungi involved are *M. equicrinis* Mull., *M. pulcher* (B. and Br.) Petch, and *M. sarmentosus* Berk. Most of these fungi form thin (hairlike) polished black mycelial cords which grow over branches and leaves, adhering at certain points. They are only weakly parasitic, if at all, in contrast to fungi such as *Corticium koleroga* (see *Coffea*), with which class of parasites they are often confused in the literature.

Marasmius perniciosus Stahel. The "krulloten" or Surinam witches'-broom disease which has made the growing of *T. cacao* commercially almost impossible in Surinam is now attributed by Stahel to the above fungus, *Colletotrichum* and *Exoascus* having been previously assigned as causes by other workers. The disease has also been found in British Guiana. The disease is characterized by somewhat curved broomlike growths brought about by an excessive development of lateral shoots, together with a shortening of the internodes of infected twigs. Diseased shoots are thicker than normal and the surfaces ridged. The leaves are always small and soft and pliant, while the petioles are always much enlarged. The witches'-brooms die in from two to three weeks and fall from the trees. Very few pods are formed and these remain small and misshapen or become very hard and black. Continued attacks of the disease not only prevent production of healthy pods but eventually destroy the trees.

Melanomma henriquesianum Bres. and Roum. On bark of *T. cacao* in San Thomé and Kamerun.

Meliola guianensis Stev. and Dowell. Black fungus patches on brown leaf spots, 3 to 10 millimeters in diameter on *T. cacao* in British Guiana.

Meliola theobromae von Faber. Superficial black fruiting patches on leaves of *T. cacao* in Cameroon.

Monilia sp. The watery or *Monilia* pod disease of *T. cacao* occurs in Ecuador, having been found there also on the wild species, *T. bicolor* and *T. balaoensis*. The disease is first noted on young pods as small protuberances or discolored areas varying from yellow to brown or even bluish. A white powder consisting of conidia of the fungus, often appears on the diseased areas. The interior of diseased pods is dark-brown, dark-brown or black strands and spots also occurring throughout the husk itself. A watery fluid forms in the interior in considerable abundance. Seeds in diseased pods are rendered worthless.

Nectria spp. A number of species of *Nectria*, including *N. bainii* Mass., *N. camerunensis* App. and Str., *N. jungeri* P. Henn., *N. theobromae* Mass., *N. ditissima* Tul., and *N. striatospora* Zimm. have been reported from the various cacao-growing countries as attacking branches, trunks and fruit of *T. cacao* as well as other tropical economic woody plants. There is a voluminous literature describing these fungi and the symptoms of the diseases resulting from their activities, but recent studies indicate that the Nectrias are for the most part saprophytic or at best weak parasites following other fungi, notably *Phytophthora faberi* Maubl. Some of the species may act as wound parasites.

Phyllosticta theobromae d'Alm. and S. da Cam. Large irregular leaf spots on *T. cacao* in Portuguese St. Thomas, Java, and Ceylon.

Phyllosticta theobromicola Vinc. Irregular brown areas on leaves of *T. cacao* in Brazil.

Physalospora affinis Sacc. On branches of *T. cacao* in the Philippines.

Physalospora theobromae Turc. On leaves of *T. cacao* in Italy.

Phytophthora faberi Maubl. This downy mildew fungus causes the most serious known disease of *T. cacao*. Other tropical economic plants, including *Artocarpus integrifolia*, *Carica papaya*, *Cocos nucifera*, and *Hevea brasiliensis* are also attacked. The fungus is reported from Cuba, Jamaica, Dominican Republic, Guadeloupe, Lesser Antilles, Trinidad, Surinam, Ceylon, Java, India, the Philippines, Malaya, Fiji, Siam, Samoa, New Guinea, Gold Coast, Uganda, Cameroon, and Belgian Congo.

The pod-rot phase of the disease begins as brown spots at the end of the pods, which rapidly spread, soon involving all of the rind and seeds in a brown rot. Diseased pods may be covered with a white mycelium and may either fall to the ground or harden and hang on the tree for a long time. The disease is more serious in moist, shady situations. Seedlings are blighted and destroyed by the fungus. Cankers very similar to those described for Hevea occur on the trunks and branches and are often extensive enough to kill the trees. See also Hevea.

Phytophthora meadii McRae. See Hevea.

Rosellinia bunodes B. and Br. See Citrus.

Rosellinia paraguayensis Starb. Found in connection with root disease of *T. cacao* in the British West Indies.

Rosellinia pepo Pat. See Citrus.

Ramularia necator Mass. White mold appears on the cotyledons of seedlings of *T. cacao* in the British West Indies and west Africa. A damping-off results.

Sphaeronema sp. This fungus is reported as the cause of a black spot and bark rot disease of *T. cacao* in Ecuador. In the first phase of the disease small dark spots appear on nearly mature pods and increase in size up to 4 centimeters. Diseased pods are invaded by a dry rot and are lighter in weight than normal ones. The fungus gains entrance through wounds and causes large cankers, from which a dark wine-colored liquid exudes in damp weather. The diseased bark tissues become yellow or reddish, a dark line separating healthy tissue from diseased.

Stachylidium theobromae Turc. On leaves of *T. cacao* in Italy.

Trachysphaera fructigena Tabor and Bunting. See Coffea.

THERMOPSIS. Hardy perennial herbs.

Phyllosticta thermopsidis Thuem. Large irregular dull-brown leaf spots on *T. lanceolata* in Siberia.

Uredo thermopsidis Thuem. Leaf rust on *T. lanceolata* in Siberia.

THESPESIA. See Hibiscus.

THEVETIA. Small, glabrous trees and shrubs.

Aecidium thevetiae Sacc. Leaf rust on *T. cuneifolia* in Mexico.

THLASPI. Pennycress. French weed. Annual or perennial herbs.

Aecidium thlaspianum Syd. Leaf rust on *T. ceratocarpon* in Austria.

Peronospora thlaspeos alpestris Gäum. Downy mildew on leaves of *T. alpestre* in central Europe.

Peronospora thlaspeos arvensis Gäum. As above on *T. arvense* in Europe.

Peronospora thlaspeos perfoliati Gäum. As above on *T. perfoliatum* in Yugoslavia, Austria, and Germany.

Puccinia thlaspeos-glaucophylli P. Henn. Brown rust pustules on leaves of *T. glaucophyllum* in Chile.

Ustilago thlaspeos (Beck.) Lagh. See Arabis.

THRINAX. Thatch palm. See Palmae.

THUJA. Arborvitae. Timber trees, also grown as ornamentals.

Caeoma deformans (B. and Br.) Tub. A rust causing witches'-brooms, 4 to 6 inches in diameter. on *T. japonica* and *Thujopsis dolabrata* in Japan.

Helicobasidium mompa Tan. See Morus.

THUJOPSIS. False arborvitae. Ornamental coniferous trees and shrubs grown for their handsome foliage and formal habit.
Caeoma deformans (B. and Br.) Tub. See Thuja.
THUNBERGIA. Clock vine. Acanthaceous, tall, perennial climbers, with a profusion of variously colored flowers.
Puccinia thunbergiae Cke. Brown leaf rust on *T. natalensis* in Japan.
Puccinia thunbergiae-alatae P. Henn. Powdery brown rust pustules on leaves of *T. alata* in Tropical Africa.
THYMUS. Thyme. Small shrubs and subshrubs, grown in borders and rockeries.
Puccinia caulincola Schneid. Dark-brown rust pustules on leaf blades, petioles, and stems of *T. augustifolium*, *T. chamaedrys*, *T. pannonicum*, *T. serpyllum*, and *Origanum vulgare* in Europe.
THYRSACANTHUS. Acanthaceous erect herbs.
Uromyces hariotanus Lagerh. Leaf rust on *T. strictus* in Costa Rica and Ecuador.
TIARELLA. Foamflower. Slender, hardy, perennial herbs.
Puccinia asiatica (Kom.) Syd. See Mitella.
TIBOUCHINA. Glory bush. Melastomaceous shrubs, some species climbers.
Dothidina peribebuyensis (Speg.) Chardon. See Miconia.
Physalospora tibouchinae P. Henn. On *Tibouchina* sp. in Brazil.
TILIA. Linden. Sometimes called basswood and lime. Timber and ornamental trees.
Actinonema tiliae Allesch. Causes premature leaf fall and swelling of buds in autumn of *Tilia* sp. in Belgium, Austria, and Germany.
Ascochyta tiliae Kab. and Bub. Subcircular to irregular, often confluent, yellow-gray, then ashen, leaf spots with purple-brown margins on *T. dasystyla* in Bohemia.
Ectostroma tiliae Fr. On leaves of *Tilia* sp. in Sweden.
Gloeosporium tiliae Oud. and var. **maculicolum** Allesch. On leaves of *T. cordata*, *T. platyphyllos*, and *T. cordata* (*T. ulmifolia*) in Europe.
Gloeosporium tiliaecolum Allesch. Irregular yellow to yellow-brown patches on leaf blades, petioles, and young twigs of *T. platyphyllos*, *T. parvifolia*, and *T. cordata* (*T. ulmifolia*) in Great Britain and Germany.
Gloeosporium vogelii Syd. On leaves of *T. cordata* (*T. ulmifolia*) in Germany.
Helmisthosporium tiliae Fr. On leaves of *T. platyphyllos* and *T. cordata* in France.
Leptosphaeria vagabunda Sacc. On branches of *Tilia* sp. in Europe.
Phyllosticta bacteriolides Vuill. Dark-brown leaf spots on *T. cordata* in France.
Phyllosticta bracteophila Ferr. Small ashen-white leaf spots on *T. platyphyllos* in Italy.
Phyllosticta praetervisa Bub. Numerous small angular leaf spots on *T. cordata* (*T. parvifolia*) in Bohemia.
Phyllosticta tilicola Oud. Small angular brown leaf spots on *T. cordata* (*T. ulmifolia*) in Holland.
Phyllosticta vogelii (Syd.) Died. On leaves of *T. platyphyllos* in Poland.
Phytophthora syringae Kleb. See Syringa.
Placosphaeria tiliae Bub. Circular to elliptical brown, then yellowish, leaf spots on *T. cordata* in Hungary.
Pucciniastrum tiliae Hirats. Yellow to brown rust pustules on leaves of *T. cordata*, *T. manshurica*, and *T. miqueliana* in Japan, China, Manchuria, and possibly Russia.
Pyrenochaeta filarszkyi Bub. Circular to irregular yellow leaf spots on *T. cordata* in Hungary.
Pyrenochaete pubescens E. Rostr. Circular to oblong purplish, then ashen, areas on branches of *Tilia* sp. in Denmark.
Septoria tiliae West. On leaves of *T. europaea* and *T. cordata* (*T. ulmifolia*) in Europe.
Uncinula miyabei Salm. Powdery mildew on leaves of *T. miqueliana* in Japan.
TILLANDSIA. Spanish moss. Epiphytic bromeliads.
Phyllosticta tillandsiae Speg. On leaves of *Tillandsia* sp. in Argentina.
Ustilago tillandsiae Patters. Powdery black smut sori destroying the inflorescences of *T. leiboldiana* and *Tillandsia* sp. in Mexico and Costa Rica.
TINNEA. Tall perennial herbs and subshrubs.
Aecidium tinneae P. Henn. Yellow leaf rust on *T. eriocalyx* in the Union of South Africa.
TIPUANA. Tipu tree. Ornamental leguminous trees.
Phyllosticta tipuanae Tassi. On leaves of *T. tipu* (*T. speciosa*) in Argentina.
TITHONIA. Tropical composite herbs.
Puccinia tithoniae Diet. and Holw. Brown to black rust pustules on leaves of *T. rotundifolia*, *T. scaberrima*, and *T. tubaeformis* in Mexico, Costa Rica, and Guatemala.
TODDALIA. Ornamental subtropical shrubs.
Aecidium toddaliae Petch. Yellow leaf rust on *T. aculeata* in Ceylon.
Bacterium citri Hasse. See Citrus.
Puccinia kentaniensis Pole-Evans. Rust on *T. lanceolata* in the Union of South Africa.
Puccinia teclae Pass. Black leaf rust on *T. nobilis* in Abyssinia.
Puccinia toddaleae Racib. Leaf rust on *T. aculeata* in Java.
TOFIELDIA. Perennial rhizomatous herbs.
Phyllosticta tofieldiae Rostr. Leaf spot on *T. borealis* in Europe.
TOLPIS. Composite herbs with showy yellow flower heads.
Puccinia heribaudiana Har. Leaf rust on *T. barbata* in France.
TORENIA. Annual or perennial herbs, sometimes grown in gardens.
Cercospora toreniae P. Henn. On leaves of *Torenia* sp. in Brazil.
Puccinia toreniae Rac. Brown leaf rust on *T. asiatica* in Java.
TORRESIA. See Hierochloa.
TOXYLON. See Maclura.
TRADESCANTIA. Spiderwort. Perennial hardy herbs.
Kordyana tradescantiae (Pat.) Rac. On leaves of *T. virginiana* and *Tradescantia* sp. in Java and Ecuador.
Uromyces commelinae (Speg.) Cke. See Commelina.
TRAGOPOGON. Vegetable oyster. Erect biennial or perennial herbs with narrow grasslike leaves and heads of yellow or purple flowers.
Ascochyta tragopogonis Boud. On leaves and stems of *T. major* in Russia.
Entyloma tragopogi Lagerh. Smut sori in elongate yellow, then brown, leaf spots on *Tragopogon* sp. in France.
Puccinia tragopogi (Pers.) Cda. Yellow and powdery dark-brown rust pustules on leaves and stems of *T. coloratus*, *T. dubius*, *T. floccosus*, *T. major*, *T. orientalis*, *T. palastinus*, *T. porrifolius*, and *T. pratensis* in Asia Minor, Algeria, and Europe. Reported from Idaho.
Ustilago tragopogonis-pratensis (Pers.) Wint. Smut sori distorting flower heads of *T. major*, *T. orientalis*, and *T. parvifolius* in Argentina and Europe.

TRAPA. WATER CHESTNUT. Floating aquarium plants.
Septoria trapae-natantis Wisn. Subcircular leaf spots with dark-purple margins on *Trapa* sp. in Galicia.
TREMANDRA. Australian shrubs.
Puccinia tremandrae B. and Br. Brown leaf rust on *T. oppositifolia* and *T. stelligera* in Australia.
TRICALYSIA. Erect or climbing shrubs.
Hemileia evansii Syd. Leaf rust on *Tricalysia* sp. in the Union of South Africa.
Phyllosticta tricalysiae A. L. Sm. Large gray leaf spots with red-brown margins on *T. griseiflora* in Angola.
TRICHILIA. Ornamental trees and shrubs.
Campsotrichum cladosporioides Sacc. Large subcircular leaf spots with dark-olive margins on *T. emetica* in tropical Africa.
Coccinia concentrica Syd. Circular crustaceous black stromata on leaves of *T. emetica* in Portuguese East Africa.
Mycosphaerella asunciensis Starb. On leaves of *Trichilia* sp. in Paraguay.
Phyllachora explanata (Lév.) Sacc. Circular black stromata on leaves of *T. havanensis* in Cuba.
Phyllosticta pertundens Sacc. Subcircular dull-yellow leaf spots on *T. emetica* in Africa.
Uredo trichiliae Arth. Leaf rust on *T. pallida* and *T. trinitensis* in Porto Rico and Trinidad.
TRICHLORIS. Perennial grasses.
Puccinia trichloridis Speg. Linear black rust sori on leaves of *T. mendocina* in Argentina.
TRICHOSANTHES. SNAKE GOURD. Annual or perennial climbing herbs.
Irene confragosa Syd. Superficial black patches on leaves of *T. quincangularis* in the Philippines.
Macrophoma trichosanthis Syd. Causes a fruit rot of *T. anguina* in the Philippines.
Uredo trichosanthes Petch. Leaf rust on *T. palmata* in Ceylon.
TRICHOSTEMA. BLUECURLS. Herbs, sometimes cultivated in gardens or rockeries.
Cercospora trichostemmatis P. Henn. Pale-brown irregular leaf spots on *T. volkensii* in Tanganyika.
TRICHOSTIGMA. Ornamental climbing shrubs.
Cercospora trichostigmae Stevens. Leaf spot on *T. octandra* in Porto Rico.
Endophyllum rivinae (B. and C.) Arth. See Rivina.
Puccinia rivinae (B. and C.) Speg. See Rivina.
Septoria rivinae Pat. See Rivina.
TRIDAX. Hardy perennial composite herbs.
Puccinia melampodii Diet. and Holw. See Zinnia.
TRIENTALIS. STAR FLOWER. Small, glabrous perennials.
Aecidium trientalis Tranzsch. Leaf rust on *T. europaea* in Russia.
Puccinia karelica Tranzsch. Leaf rust on *T. europaea* and *Carex limosa* in Russia. Reported from New York.
Ramularia magnusiana (Sacc.) Lind. On leaves of *T. europaea* in Denmark, Austria, and Germany.
Septoria trientalis (Lasch.) Sacc. Small circular gray-white leaf spots on *T. europaea* and *Trientalis* sp. in Russia, Sweden, Denmark, and Germany.
Sorosporium trientalis Woron. Smut on *T. europaea* in Finland.
Tubercinia trientalis (B. and Br.) Wor. Thickened leaf spots and crustlike growths on stems of *T. europaea* in Japan and northern Europe.
TRIFOLIUM. CLOVER. Herbaceous perennials grown for lawns and as forage crops.
Ascochyta trifolii A. Bond and Trus. On *T. pratense* in Russia.
Ascochyta volkartii Bub. On *T. repens* in Bulgaria.
Bacillus trifolii Vogl. Attacks stems, leaves, and peduncles of *T. repens* in Italy.
Bacterium sp. A leaf curl and wilt of stems of *T. pratense* in Italy is thought to be due to a *Bacterium*.
Botrytis anthophila A. Bond. Gray mold destroying flowers and preventing seed production of *T. pratense* in Russia.
Cercospora stoiziana Magn. Yellow swollen leaf spots on *T. repens* in Bohemia and Austria.
Hypochnus cucumeris Fr. See Cucumis.
Leptosphaeria circinans (Fckl.) Sacc. See Asparagus.
Mycosphaerella carinthiaca Jaap. (*Ramularia trifolii* Jaap.). Leaf spots, brown above, gray-green below, on *T. medium* in Great Britain, Switzerland, Austria, and Germany.
Ovularia exigua (W. Sm.) Sacc. On leaves of *Trifolium* sp. in Great Britain.
Peronospora pratensis Syd. Downy mildew on leaves of *T. incarnatum*, *T. medium*, and *T. pratense* in Europe.
Peronospora trifolii alpestris Gäum. Downy mildew on leaves of *T. alpestre* in Switzerland, Denmark, and Germany.
Peronospora trifolii arvensis Syd. As above, on *T. arvense* in Switzerland, Russia, Denmark, and Germany.
Peronospora trifolii hybridi Gäum. Downy mildew on leaves of *T. hybridum*, *T. spadiceum*, and *T. striatum* in Europe.
Peronospora trifolii minoris Gäum. As above on *T. agrarium*, *T. badium*, *T. minus*, *T. patens* and *T. procumbens* in Europe.
Peronospora trifolii repentis Syd. Downy mildew on leaves of *T. monatum*, *T. repens*, and *T. rubens* in central and northern Europe.
Phyllostieta trifolii Rich. On leaves of *T. pratense* and *T. repens* in Sweden and Russia.
Pseudovularia trifolii Speg. Indefinite subcircular brown spots with subashen centers on *T. platensis* in Argentina.
Rhabdospora alexandrina Chrest and Maire. Irregular black spots on stems and circular brown leaf spots on *T. alexandrinum* in Egypt.
Septoria trifolii Cav. On leaves of *T. repens* in Italy.
Sphaerulina trifolii E. Rostr. Circular brown leaf spots with pale-purple surrounding zones on *T. pratense* and *T. repens* in Denmark and Germany.
Tylenchus dipsaci Kuehn. See Narcissus.
Typhula trifolii Rostr. Forms small black sclerotia in rotted areas in stems and leaves of *T. pratense*, *T. repens*, *Anthyllis vulneraria*, and *Medicago lupulina* in northern Europe. The parasitism of this fungus is uncertain.
Uromyces fiectens Lagh. Brown powdery rust pustules on leaf blades and petioles of *T. repens* in Japan and Europe. Also reported from Wisconsin.
Urophlyctis trifolii (Pass.) Magn. Pustules on leaf blades and petioles of *T. montanum*, *T. pratense*, and *T. repens* in Great Britain, Denmark, Italy, and Germany.

TRIGONELLA. FENUGREEK. Annual or perennial herbs.

Cercospora traversiana Sacc. Subcircular brown leaf spots on *T. foenum-graecum* in Italy.

Cercospora trigonellae A. Maubl. On leaves of *T. foenum-graecum* in Brazil.

Peronospora trigonellae Gäum. Downy mildew on leaves of *T. foenum-graecum* and *T. polycerata* in Algeria, Russia, and India.

Uromyces anthyllidis (Grev.) Schroet. See Anthyllis.

Uromyces trigonellae Pass. Leaf rust on *T. foenum-graecum* and *T. occulta* in Egypt, India, Italy and France. Said to be synonymous with the above species.

TRIPETALEIA. Shrubs cultivated for their flowers.

Uredo tripetaleiae Diet. Leaf rust on *T. bracteata* in Japan.

TRIPSACUM. GAMA GRASS. Perennial grasses with stout culms, used as fodder plants.

Puccinia pallescens Arth. Brown powdery rust pustules on leaves of *T. dactyloides*, *T. latifolium*, *T. lanceolatum*, and *Zea mays* in Mexico, Porto Rico, Guatemala, Nicaragua, Salvador, and Trinidad.

Ustilago dietelliana P. Henn. Dark, olivaceous smut sori in panicles of *T. dactyloides* in Mexico.

TRISETUM. Hardy perennial grasses.

Puccinia triseti Erikss. Yellow-brown to black rust pustules on leaves of *T. barcinonensis*, *T. dejeuxioides*, *T. flavescens*, *T. neglectum*, and *T. ovatum* in Guatemala and Europe. Also reported from Utah.

Septoria caballeroi Gz. Frag. On *T. ovatum* and *T. paniceum* in Spain.

Septoria nebulosum Rostr. See Calamagrostis.

Septoria triseti Speg. See Agrostis.

TRISTANIA. Evergreen trees or shrubs.

Ascochyta brunnea Cke. and Mass. Ochraceous to dull-brown leaf spots on *T. conferta* in Australia.

Helminthosporium pucciniioides Sacc. and Berl. On leaves of *T. laurina* in Australia.

Mycosphaerella tristaniae Wakef. On leaves of *T. griffithii* in the Federated Malay States.

Phyllosticta tristaniae D. Sacc. Subcircular gray-white leaf spots with red margins on *T. conferta* in Italy.

Septoria hanburyana Tassi. On leaves of *T. nereifolia* in Italy.

Septoria tristaniae P. Henn. Brown leaf spots on *T. laurina* in Germany.

TRITELEIA. Bulbous plants.

Uromyces reichei Diet. Brown rust pustules on leaves of *T. gaudichaudiana* in Chile.

Uromyces triteleiae Diet. and Neg. Rust on leaves and scapes of *T. porrifolia* in Chile.

TRITHRINAX. South America fan palms. See Palmae.

TRITICUM. WHEAT.

Acremoniella occulta Cav. See Secale.

Acremoniella verrucosa Togn. See Avena.

Bacillus cerealinum Gentner. See Hordeum.

Dilophospora graminis Desm. (*Mastigosporium album* Reiss.) (*Dilophia graminis* Fckl.) Small light-colored circular to oblong spots appear on both leaf surfaces, becoming larger and dark in color to form blotches and stripes. Infected leaves soon assume a light-yellow color and die. Leaf sheaths are also attacked, particularly the upper ones, and generally before heading out, so that the growing point is firmly inclosed by the young leaves bound together by a mass of mycelium. The continued growth of the tip causes characteristic distortion or buckling of the stems. When infection occurs after heading out deformation of the spikes may be partial or complete, affected areas covered at first with a dirty-white fungus growth which later becomes black and gives a charred appearance. This disease occurs in connection with the nematode *Tylenchus tritici*. Many grasses are attacked, including *Triticum* spp., *Agrostis alba*, *A. stolonifera*, *A. vulgaris*, *Alopecurus agrestis*, *A. pratensis*, *Arrhenatherum elatius*, *Anthoxanthum odoratum*, *Calamagrostis arundinacea*, *C. canadensis*, *C. lanceolata*, *C. epigeios*, *Dactylis glomerata*, *Festuca ovina*, *F. pratensis*, *F. rubra*, *Holcus lanatus*, *H. mollis*, *Phleum pratense*, *Poa trivialis*, and *Secale cereale*, in England, Holland, France, Belgium, Switzerland, Norway, Denmark, and Germany. Reported on *Calamagrostis canadensis* from Wisconsin.

Fusarium nivale (Fr.) Sor. See Secale.

Gibellina cerealis Pass. Round or elongate black patches on leaf sheaths of *Triticum* in Italy and Hungary. Infected plants turn yellow, wilt, and finally die.

Helminthosporium tritici P. Henn. Brown areas on leaves, culms, and spikes of *Triticum* in Tanganyika.

Leptosphaeria culmicola (Fr.) Karst. See Bromus.

Leptosphaeria herpotrichoides De N. Brown spots appear on the leaf sheaths at the base of infected plants, enlarging so as to encircle the culms and penetrating to the stem. Mycelial mats form between and bind the leaf sheaths together. Diseased plants fail to produce grain and infected stems lodge. The hosts are *Triticum*, *Andropogon* sp., and *Koeleria cristata* in Argentina, France, Italy, Finland, Sweden, Denmark, and Germany. One of the foot-rot or take-all group of diseases. See Ophiobolus.

Macrophoma hennebergii (Kuehn) Berl. and Vogl. Brown spots on glumes and leaves of *Triticum* in Italy, Russia, Sweden, and Germany. The disease causes the grain to shrivel up.

Micrococcus tritici Prill. Grains develop poorly, shrivel, and turn red. On *Triticum* (cult.) and *Hordeum vulgare* in Brazil, Argentina, Italy, France, and Denmark.

Mycosphaerella exitialis Mor. See Hordeum.

Mycosphaerella hordicola Hara. See Hordeum.

Mystrosporium abrodens Neum. Dark patches on the lower nodes and leaves of *Triticum* in France. Diseased plants fail to form grain.

Nigrospora panici Zimm. Black fungus patches on stems and leaf sheaths of *Triticum*, *Oryza sativa*, and *Zea mays* in Java.

Ophiobolus caricetî (B. and Br.) Sacc. (*O. graminis* Sacc.) The take-all, pietin, or foot-rot disease of cereals has been the cause of heavy losses for many years. A number of fungi have been found associated with the disease, but *O. caricetî* is apparently the most common and most virulent species present. The hosts are *Triticum*, *Secale cereale*, *Agropyron* sp., *Avena sativa*, *Agrostis palustris*, *Hordeum sativum*, *H. murinum*, *Oryza sativa*, *Bromus mollis*, *B. sterilis*, *Elymus*, *Festuca*, *Lolium*, *Hystrix*, and *Phalaris* in Australia, Japan, Argentina(?), Great Britain, Sweden, Holland, France, Belgium, Italy, and Germany. The disease has also been found recently in a number of the States. The symptoms of the disease are very characteristic. There is a browning or blackening of the base of the stems with the development of an enveloping brown mycelial mat in which the perithecia develop. The roots turn black and rot off. Diseased plants turn yellow and finally die, always failing to set grain. The disease kills out irregular patches in the field which may become very extensive.

Ophiobolus herpotrichus (Fr.) Sacc. This species attacks the stems and leaves at or near the base of the plant, causing a disease similar to the take-all described above. It attacks *Triticum*, *Hordeum* sp., *Cynodon* sp., and *Agrostis* sp. in Italy, France, Denmark, Belgium, Holland, Hungary, and Germany.

TRITICUM—Continued.
Phoma bennebergii Kuehn. Large irregular gray-brown spots on glumes of *Triticum* in Sweden.
Phyllachora triticl-gracilis (Cast.) Sacc. Black stromata on leaves of *T. gracile* in France.
Pseudomonas tritici Hutch. The inflorescences and stems are covered with a bright primrose-yellow slime which forms sticky layers between the glumes and between the stems and sheaths. Such heads as form are distorted. The disease is readily carried on seed grain. On *Triticum* in India.
Puccinia brachypus Speg. See Bromus.
Puccinia megalopotamica Speg. Powdery brown rust pustules on leaves and sheaths of *Triticum* in Argentina.
Pyroctonum sphaericum Prunet. Attacks all parts of *Triticum* plants, causing a yellowing and shriveling of the leaves, abortion of the grain, and dwarfing of the plants in France.
Rhizoctonia napi West. See Brassica.
Sclerospora macrospora Sacc. This downy mildew gives infected plants a scalded appearance, the leaves dry up, and the heads abort or are deformed. A white mold growth appears on lower leaf surfaces. In addition to *Triticum*, *Alopecurus* sp., *Avena sativa*, *Festuca elatior*, *Lolium temulentum*, *Oryza sativa*, *Phragmites communis*, *Phalaris canariensis*, and *Zea mays* are attacked in Australia, Japan, Abyssinia, Russia, France, Spain, and Italy. The disease is present in the United States in a few localities.
Septoria agrestis Sacc. On leaves of *Triticum* in Russia and France.
Septoria cristati Höll. Leaf spots on *T.* (*Agropyron*) *cristatum* in Hungary.
Septoria neglecta Sacc. On leaves of *Triticum* in France.
Septoria nymanniana Sacc. Elongate ochraceous areas on *Triticum* in Malta.
Sphaeroderma damnosum Sacc. The fungus develops a white mycelium beneath the sheaths and stems at the base of infected plants, causing a yellowing and dwarfing of the plants and abortion of the spikes. On *Triticum* and *Secale* in Italy. Considered by some workers as identical with *Fusarium culmorum*.
Tilletia controversa Kuehn. Black powdery, fetid masses of smut spores in ovaries of *T. vulgare*, *T.* (*Agropyron*) *repens*, *T. glaucum*, and *Elymus arenarius* in Turkestan, Russia, Denmark, Bohemia, Italy, Albania, Austria, and Germany.
Tylenchus tritici Bast. This nematode attacks young wheat (*Triticum*) plants, causing a wrinkling and distortion of the upper leaves. Such plants may die or remain alive and produce dwarfed, diseased heads. In place of normal grain dark hard galls form, which are shorter and thicker than wheat grains and filled with the parasites. The nematode affects *Triticum* primarily, but by inoculation has been found capable of attacking spelt, emmer, oats, and rye. The disease is known from Brazil, India, China, Turkestan, Australia, and Europe. In the United States it is reported from Virginia, Maryland, West Virginia, Georgia, and California.
Typhula graminum Karst. See Lolium.
Urocystis tritici Koern. The flag smut of wheat (*Triticum*) is characterized by long gray sori on the leaves and sometimes on the sheaths and stems, which finally rupture, exposing black powdery spore masses. Diseased leaves and stems become twisted, assume a drooping habit, and finally wither. If grain is formed at all, it shrivels up and is valueless. Diseased plants are much stunted. The disease occurs in India, Japan, China, Australia, Spain, Italy, and the Union of South Africa. Within recent years it has been found in Illinois, Missouri, and Kansas in limited areas.
Ustilago trebouxi Syd. See Melica.

TRITONIA. Cormous or bulbous plants.
Septoria tritoniae Pat. Elongate ashen-colored spots on stems of *Tritonia* sp. in Ecuador.
Uromyces bonae-spei Bub. Yellow to chestnut-brown rust pustules on both leaf surfaces of *T. scillaris* and *Acidanthera pallida* in the Union of South Africa.
Uromyces transversalis Thuem. See Gladiolus.

TROCHODENDRON. Evergreen trees with aromatic bark and foliage.
Phyllosticta trochodendri Alm. and Cam. Leaf spot of *T. aralioides* in Portugal.

TROLLIUS. GLOBEFLOWER. Hardy herbaceous perennials.
Aecidium trollii Blytt. Leaf rust on *T. europaeus* in Russia.
Ascochyta trollii Thuem. Irregular gray-white leaf spots with dark-brown margins on *T. asiaticus* in Siberia.
Didymaria trollii Jacz. On leaves of *T. europaeus* in Russia.
Metasphaeria trollii Karst. On stems of *T. europaeus* in Finland.
Phyllosticta trollii Trail. Irregular brown leaf spots on *T. europaeus* in Great Britain, Italy, and Spain.
Puccinia dietrichiana Trans. Leaf rust on *T. europaeus* in Russia.
Puccinia trollii Karst. Brown rust pustules in irregular sunken spots on leaf blades and petioles of *T. europaeus* in Italy, Switzerland, France, Belgium, Norway, Lapland, and Germany.
Ramularia trollii (Jacz.) Lind. On leaves of *T. europaeus* in Spain, Switzerland, Russia, and Finland.
Septoria trollii Sacc. and Wint. Ochraceous leaf spots on *T. europaeus* in Yugoslavia, Switzerland, Spain, and the Union of South Africa.

TROPAEOLUM. NASTURTIUM. Climbing or erect herbs, cultivated in gardens.
Coleosporium tropaeoli Palm. Rust on leaves of *T. peregrinum* in Germany.
Cronartium flaccidum (Alb. and Schw.) Wint. See Paeonia.
Phyllosticta tropaeoli Sacc. and Speg. On leaves of *T. majus* in Italy, France, Portugal, and Austria.
Uredo tropaeolum Desm. Bright-orange rust pustules on lower leaf surfaces of *Tropaeolum* sp. in Europe.
Uromyces tropaeoli Ranoj. Leaf rust on *T. majus* in Yugoslavia.

TSUGA. HEMLOCK. Coniferous timber and ornamental trees.
Ascochyta piniperda Lindau. See Picea.
Phomopsis pseudotsugae Wils. See Pseudotsuga.

TULIPA. TULIP. Many-colored spring-flowering hardy bulbs.
Aecidium tulipae Komarov. Yellow rust pustules on the leaves of *T. turkestanica* in central Asia. Possibly one stage of *Uromyces tulipae* Diet.
Helminthosporium tenuissimum Nees. Dead spots on scapes of *T. heteropetala* in Siberia.
Puccinia prostii Moug. This rust produces brown oblong convex rust pustules on both surfaces of the leaves of *T. celsiana* and *T. silvestris*, including many cultivated varieties in Italy, Great Britain, and France. The disease checks flowering or may even prevent it entirely.
Puccinia tulipae Schroet. Brown leaf rust on *T. gesneriana* and *T. suaveolens* in Austria and Germany.
Rhizoctonia tuliparum (Klebh.) Whet. and Arth. (*Sclerotium tuliparum* Klebh.) This disease has been very destructive at times to tulip plantings in Holland and has also been reported from England, Switzerland, and Germany. There are several reports of occurrence in America. Infected plants rot at the ground level, wither, and die. Diseased bulbs show a dry grayish or reddish-gray rot internally, with abundant grayish-white mycelium externally and between the diseased scales. Numerous more or less globose, dark-brown to black sclerotia occur on the rotted scales and neck of the bulb and occasionally between the scales.

TULIPA—Continued.

Sclerotinia tuliparum (Wakk.) Rehm. This fungus causes the so-called black rot of hyacinth bulbs in Italy, Great Britain, Holland, France, and Germany. Bulbs of *Crocus*. *Scilla* spp., and *Tulipa* spp. are also attacked.

Sclerotium spp. (*Botrytis* spp.) Several *Sclerotium* and *Botrytis* diseases on tulips and other bulbs have been listed and studied by various workers. It is far from clear how many distinct diseases are involved or which ones have reached the United States. *Botrytis tulipae* (Lib.) Hopk., the so-called *Botrytis* blight of tulips, is widespread in this country, having been introduced times without number on Dutch bulbs. See *Rhizoctonia*, *Sclerotinia*.

Synchytrium laetum Schroet. See Gagea.

Urocystis colchici (Schlecht.) Rab. See Colchicum.

Uromyces tulipae Diet. A rust known only from Japan causing yellow to brown rust pustules on both surfaces of leaves of *T. edulis*.

Ustilago tulipae Wint. Elliptical convex pustules appear on the leaves and split longitudinally exposing the black dusty spore masses. *Tulipa* spp., including *T. sylvestris* in France, Austria, and Germany, are the hosts. *Ustilago heufleri* Fckl., which is considered synonymous by some workers with the above, occurs in America on *Erythronium americanum*.

TUMBOA. See Welwitschia.

TUNICA. TUNIC FLOWER. Annual or perennial hardy herbs.

Septoria dianthicola Sacc. See Dianthus.

Urocystis purpurea Hazl. See Dianthus.

TURRAEA. Ornamental trees and shrubs.

Aecidium ugandense Syd. Rust pustules in circular to irregular yellow to yellow-brown leaf spots on *Turraea* sp. in British tropical Africa.

Pseudographis volkensii P. Henn. On branches of *T. volkensii* in tropical Africa.

TUSSILAGO. COLTSFOOT. Acaulescent perennial herbs with solitary yellow flower heads.

Ascochyta tussilaginis Oud. On leaves of *T. farfara* in Holland.

Coleosporium tussilaginis (Pers.) Lév. See Pinus.

Phyllosticta caballeroi Gz. Frag. On leaves of *T. farfara* in Spain.

Phyllosticta farfarae Sacc. and var. **fnajor** P. Brun. Irregular gray-white leaf spots on *T. farfara* in Italy, France, and Denmark.

Ramularia purpurascens Wint. Grayish-white leaf spots with indefinite purplish surrounding zones on *T. fragrans* and *Nardosmia fragrans* in Portugal.

Septoria farfarae Pass. Gray-brown leaf spots on *T. farfara* in Italy.

Septoria tussilaginis West. Irregular brown to olivaceous, finally gray-white, leaf spots on *T. farfara* and *T. fragrans* in Italy, Belgium, and Germany.

Stagonospora tussilaginis (Fckl.) Died. On leaves of *T. farfara* in Italy, Denmark, Austria, and Germany.

TYPHA. CAT-TAIL. Hardy perennial marsh herbs.

Hainesia corallina Sacc. and Fautr. On leaves of *T. latifolia* in France.

Heterosporium typharum Cke. and Mass. On leaves of *T. angustifolia* in Great Britain.

Ophiobolus typhae Feltg. On leaves of *T. latifolia* in Luxemburg.

Phyllosticta coralliobola Bub. and Kab. Irregular elongate ochraceous to brown leaf spots on *T. angustifolia* in Bohemia.

Phyllosticta typha (Pass.) Oud. On leaves of *T. angustifolia* in Holland.

Phyllosticta typhina Sacc. and Malbr. Oblong reddish leaf spots on *T. japonica* and *T. latifolia* in Japan and Europe.

Septoria filispora (Cke.) Sacc. On leaves of *T. latifolia* in France.

Septoria menispora B. and Br. On leaves of *T. latifolia* in Belgium and Great Britain.

Ustilago grandis Fr. See Phragmites.

ULMARIA. See Spiraea.

ULMUS. ELM. Timber and ornamental trees.

Acremoniella pallida Cke. and Mass. On *Ulmus* sp. in Europe.

Actinonema ulmi Allesch. Irregular yellow, then brown, leaf spots on *U. campestris* in Austria.

Ascochyta ulmella Sacc. Pale-brown leaf spots on *U. campestris* in Italy.

Asteroma fuckelii Sacc. On leaves of *Ulmus* sp. in Europe.

Asteroma ulmi Klotzsch. On leaves of *U. campestris*, *U. parvifolia*, and *U. glabra*, (*U. scabra*) in Japan, Great Britain, France and, Portugal.

Cercosporella ulmicola v. Hoeh. Subcircular ashen-brown leaf spots with dark margins on *Ulmus* sp. in Austria.

Cucurbitaria naucosa Fr. Causes swellings on the branches of *U. glabra* in Switzerland, followed by withering of the leaves and death of infected branches.

Exoascus campester Sacc. Ochraceous leaf spots on *U. campestris* and *U. glabra* (*U. montana*) in France.

Exosporium ulmi Eriks. Found in connection with die-back of twigs of *U. campestris*, *U. pedunculata* (*U. effusa*), and *U. glabra* in Sweden.

Laestadia comedens (Pass.) Sacc. Subcircular to irregular leaf spots on *U. campestris* in Italy.

Leptosphaeria ulmicola Mass. Irregular brown leaf spots on *U. campestris* in Italy.

Mycosphaerella insularis Walbr. On leaves of *Ulmus* sp. in Germany.

Mycosphaerella oedema (Fr.) Fckl. On leaves of *U. campestris* and *U. effusa* in central Europe.

Phyllosticta oellunensis Mart. Large irregular brown leaf spots on *U. campestris* (*U. elliptica*) and *U. glabra* in Russia, Poland, and Italy.

Phyllosticta lacerans Pass. Gray confluent leaf spots, the centers of which tear and drop out, on *U. campestris* in Russia and Italy.

Phyllosticta ulmi West. Subcircular, then confluent, ashen leaf spots on *U. americana*, *U. montana* and *U. fulva* in Italy, Bulgaria, and Belgium.

Placosphaeria ulmi P. Henn. Circular to angular yellow leaf spots on *U. parvifolia* in Japan.

Septoria ulmicolum (Biv. Bern.) Elenk. and Ohl. On *Ulmus* sp. in Russia.

Sphaeropsis nervisequa Lang. Causes a die-back of twigs of *U. glabra* in Germany. The leaves are first attacked, the fungus working down through the petioles.

Sporidesmium ulmi Fckl. On leaves of *U. pedunculata* in Germany.

Stagonospora ulmifolia (Pass.) Sacc. Small leaf spots on *U. campestris* in Italy.

Systremma ulmi (Schleich.) Theiss. and Syd. (*Phyllachora ulmi* [Duv.] Fckl.) Subcircular scattered, raised black stromata on leaves of *U. campestris*, *U. glabra*, *U. pedunculata*, and *U. suberosa* in Algeria and Europe. Often confused with a similar-appearing American elm-leaf disease caused by *Gnomonia ulmea* (Schw.) Thuem.

Taphrina ulmi (Fckl.) Johans. Pellucid, blisterlike spots on leaves of *U. alata*, *U. campestris*, and *U. montana* in Europe.

Teratosperma singulare Syd. Black fruiting pustules on leaves of *U. parvifolia* in Japan.

ULMUS—Continued.
Uncinula clandestina (Biv. Bern.) Schroet. Powdery mildew on leaves of *U. campestris*, and *U. montana* in Japan, Algeria and, Europe.
A serious disease of elms (*U. americana*, *U. campestris*, *U. pedunculata*, *U. monumentalis* and *U. rupelli*), characterized by a dying back of the twigs and branches, occurs in Holland and adjacent countries. Young trees frequently die while older trees are permanently affected, the leaves remaining small and falling prematurely. A number of fungi, including *Graphium ulmi* Schwartz have been found in connection with the disease, but their parasitic relationships have not yet been worked out. Brussoff attributes the disease to bacteria and considers the fungi secondary.
UMBILICUS. Herbs related to *Cotyledon*.
Aecidium umbilici Trott. Leaf rust on *U. erectus* and *U. pendulinus* in Portugal and Spain.
Phyllosticta umbilici Brun. Indefinite brown leaf spots on *U. erectus* and *U. pendulinus* in Spain, Portugal, and France.
Puccinia umbilici Guep. Powdery red-brown rust pustules on leaf blades and petioles of *U. erectus* and *U. pendulinus* in Great Britain, Belgium, France, Spain, and Portugal.
Septoria umbilici Maire. On leaves of *U. horizontalis* in French North Africa.
UNIFOLIUM. See Maianthemum.
URECHITES. Tropical and subtropical twining vines.
Phyllosticta glaucispora Delacr. On leaves of *U. lutea* in Porto Rico.
URGINEA. SEA ONION. Bulbous herbs.
Aecidium urgineae P. Henn. and Evans. Yellow rust pustules on leaves of *Urginea* sp. in the Union of South Africa.
Cladochytrium urgineae Pat. and Trab. Oval or subcircular spots, 1 to 2 centimeters in diameter on leaves of *U. maritima* in Algeria.
Septoria urgineae Pass. and Beltr. A leaf spot of *U. scilla* in Sicily.
Uromyces scillarum (Grev.) Wint. See Hyacinthus.
Ustilago vaillantii Tul. See Hyacinthus.
UROSTIGMA. See Ficus.
UTRICULARIA. BLADDERWORT. Aquatic or terrestrial plants.
Doassansia utriculariae P. Henn. Smut sori in subcircular, then confluent, black leaf spots on *U. reniformis* in Brazil.
UVARIA. Tropical climbers.
Actinonema uvariae (Lév.) Sacc. On leaves of *U. parviflora* in central Africa.
Aecidium uvariae-rufae P. Henn. Circular red-brown leaf spots on *U. rufa* in the Philippines.
Phyllachora incarcerata (Berk.) Sacc. Shiny black stromata on leaves of *Uvaria* sp. in Ceylon.
Phyllosticta uvariae Berk. Subcircular to irregular brown leaf spots on *U. triloba* in Great Britain.
VACCINIUM. BLUEBERRY. CRANBERRY. Shrubs cultivated for their fruit.
Glocosporium myrtilli Allesch. Anthracnose on *V. myrtillus* in Europe.
Mycosphaerella stemmatea (Fr.) Rom. On leaves of *V. vitis-idaea* in Sweden, Denmark, Esthonia, and Austria.
Phacidium vaccinii Fr. On leaves of *V. vitis-idaea* in Europe.
Phyllachora japonica Cke. and Mass. Doubtful species on *V. japonicum* in China.
Phyllosticta lepidea (Fr.) Allesch. On leaves of *V. vitis-idaea* in France.
Phyllosticta vaccinii-hirti P. Henn. Effuse red-brown leaf spots, ashen-brown beneath, on *V. hirtum* in Japan.
Physalospora leptidea (Hazsl.) Sacc. and Trott. On leaves of *V. ritis-idaea* in Hungary.
Physalospora vitis-idaeae Rehm. On leaves of *V. vitis-idaea* in Germany.
Ramularia tumescens (Fckl.) Sacc. On branches of *V. uliginosum* in Belgium and Germany.
Sclerotinia baccarum (Schroet.) Rehm. Fruit rot of *V. myrtillus* in Russia, Switzerland, Austria, and Germany.
Sclerotinia heteroica Wor. See Ledum.
Sclerotinia urnula Rehm. White mildew on stems, leaves, and fruit of *V. vitis-idaea* in Finland, Switzerland, and Germany. The fruits become hard and dry.
Septoria lagerheimi Pat. On leaves of *Vaccinium* sp. in Ecuador.
Septoria oleae-vaccinii P. Henn. Circular gray-white leaf spots with dark-brown margins on *V. bracteatum* in Japan.
Septoria stemmatea (Fr.) Berk. Subcircular dull-brown leaf spots on *V. uliginosum* in Siberia, Sweden, Great Britain, Russia, and Italy.
Septoria vaccinii P. Henn. On leaves of *V. bracteatum* and *V. hirtum* in Japan.
Sphaerodothis circumscripta (Berk.) Theiss. and Syd. Irregular black shiny stromata on leaves of *Vaccinium* spp. in Colombia and Peru.
VAGNERA. See Smilacina.
VALERIANA. VALERIAN. Hardy herbs or shrubs, grown in gardens.
Aecidium valdivianum Sacc. and Syd. Rust on leaf blades and petioles of *V. valdiviana* in Chile.
Cylindrosporium valerianae Speg. On leaves of *V. heterophylla* in Siberia.
Endophyllum valerianae-tuberosae R. Maire. Yellow rust sori on leaves of *V. tuberosa* in France and Macedonia.
Peronospora valerianae Trail. Indefinite violet-gray downy-mildew patches on leaves of young plants of *V. morisonii*, *V. officinalis*, and *V. olitoria* in Scotland, France, Esthonia, and Switzerland.
Puccinia commutata Syd. Golden and brown rust pustules on leaf blades, petioles, and stems of *V. officinalis*, *V. sambucifolia*, and *V. tripteris* in Europe. Reported from New York and Oregon.
Puccinia valerianae Carest. Dark-brown rust pustules on leaves of *V. capitata*, *V. celtica*, *V. officinalis*, *V. sambucifolia*, *V. sazatilis*, *V. tripteris*, and *Centranthus calcitrapa* in Alaska, Italy, Switzerland, and Austria.
Septoria valerianae Sacc. and Fautr. Ovate to angular dull-rufous leaf spots on *V. dioica*, *V. major*, *V. montana*, *V. officinalis*, and *V. tripteris* in France, Switzerland, Denmark, and Austria.
Uredo valerianae-wallichii Diet. Brown leaf rust on *V. leschenaultii* and *V. wallichii* in India.
Uromyces valerianae (Schum.) Fckl. Brown leaf rust on *Valeriana* spp. in Europe, Siberia, and the Union of South Africa.
VALERIANELLA. Herbs grown in rock gardens, one species a salad plant.
Aecidium velenovskyi Bub. Leaf rust on *V. membranacea* in Bulgaria.
Aecidium valerianellae Biv. Leaf rust on *V. campanulata*, *V. discoidea*, *V. eriocarpa*, *V. microcarpa*, *V. olitoria*, *V. pumila*, and *V. truncata* in Europe and north Africa.
Peronospora valerianellae Fckl. Downy mildew on leaves of *V. carinata*, *V. dentata*, *V. morisonii*, *V. olitoria*, and *V. rimosa* in Europe.
VALERIANOIDES. See Stachytarpheta.
VANDA. See Orchidaceae.
VANDOPSIS. See Orchidaceae.

VANGUERIA. Tropical shrubs or trees.
Aecidium vangueriae Cke. and var. **abyssinica** P. Henn. Leaf rust on *V. edulis*, *V. infausta*, and *V. latifolia* in Abyssinia, Uganda, and the Union of South Africa.
Hemileia woodii Kalchbr. and Cke. Orange-yellow rust pustules on leaves of *V. edulis*, *V. euonymoides*, *V. infausta*, *V. latifolia*, *V. madagascarensis*, and *V. pubescens* in Abyssinia, central, and south Africa.
VANILLA. Climbing orchids. Cultivated for their aromatic pods. See Orchidaceae.
VERATRUM. FALSE HELLEBORE. Hardy perennial herbs grown in gardens.
Cylindrosporium veratrinum Sacc. and Wint. On leaves of *V. album* in Switzerland. Reported from Utah and New York.
Gloeosporium veratrinum Allesch. Anthracnose on leaves of *V. album* (*V. lobelianum*) in Germany.
Mycosphaerella veratri v. Hoeh. On *V. nigrum* in Europe.
Phyllachora melanoplaca Sacc. See Convallaria.
Phyllosticta albina Bub. and Kab. Oblong dark-brown leaf spots on *V. album* and *V. lobelianum* in Hungary and Austria.
Phyllosticta macrothecia (Thuem.) Gz. Frag. On leaves of *V. album* in Spain.
Phyllosticta melanoplaca Thuem. Linear black leaf spots on *V. album* and *V. nigrum* in Siberia, Russia, Switzerland, Italy, and Bulgaria. Reported from Utah.
Phyllosticta veratrina Sacc. and Paol. On leaves and stems of *V. album* in Siberia.
Puccinia pachycephala Diet. Brown to black rust pustules on brown or yellow leaf spots on *V. mazimowiczii* and *V. nigrum* in Japan and Russia.
Septoria sublineolata Thuem. Linear gray-white leaf spots with dull-brown margins on *V. album* and *V. nigrum* in Siberia.
Uromyces veratri (DC.) Schroet. Yellow and powdery chestnut-brown rust pustules on leaves of *V. album*, *V. nigrum*, *V. stamineum*, *Adenostyles albifrons*, *A. alpina*, *Cacalia delphinitifolia*, *C. krameri* and *Homogyne alpina* in Japan, Siberia, and Europe.
VERBASCUM. MULLEIN. Hardy biennial herbs, mostly weeds.
Ascochyta verbasci Sacc. and Speg. Ochraceous leaf spots on *V. phlomoides* and *V. sinuatum* in Italy.
Erysiphe taurica Lév. See Althaea.
Peronospora verbasci Gäum. Downy mildew on leaves of *V. lychnites*, *V. montanum*, *V. nigrum*, *V. phlomoides*, *V. thapsiforme*, and *V. thapsus* in central and northern Europe.
Phyllosticta banatica Bub. Large irregular leaf spots on *V. banaticum* in Hungary.
Phyllosticta verbasci Sacc. Small, pale-brown leaf spots on *Verbascum* sp. in France. Reported from New York and New Jersey.
Ramularia cylindroides Sacc. See Pulmonaria.
Septocylindrium bellocense C. Mass. and Sacc. On leaves of *V. nigrum* in Italy.
Uromyces thapsi (Opiz.) Bub. Yellow and black rust pustules on leaves of *V. lychnites*, *V. neilreichii*, *V. nigrum*, *V. orientale*, *V. phlomoides*, *V. schraderi*, *V. thapsus*, and *V. thapsiformis* in Europe.
VERBENA. Annual or perennial herbs or subshrubs, cultivated in gardens.
Aecidium spegazzinianum Sacc. and Trott. Leaf rust on *V. tenera* in Argentina.
Cronartium flaccidum (Alb. and Schw.) Wint. See Paeonia.
Microsphaera ferruginea Erikss. Powdery mildew on leaves of *V. hybrida* in Sweden.
Phyllosticta verbenae Sacc. Ashen leaf spots on *V. hastata* and *V. officinalis* in France and Denmark.
Puccinia elongata Speg. Dark-brown rust pustules on stems of *V. litoralis* in Argentina.
VERBESINA. CROWNBEARD. Annual or perennial herbs.
Ceresporella tuberculariodes Speg. On leaves of *Verbesina* sp. in Argentina.
Coleosporium anceps Diet. and Holw. Golden rust pustules on leaves of *V. sphaerocephala* in Mexico.
Coleosporium verbesinae Diet. and Holw. Golden rust pustules on leaves of *Verbesina* spp. in Mexico, Costa Rica, Guatemala, and Jamaica.
Puccinia allii Syd. Powdery black rust pustules on leaves of *V. trilobata* and *V. perymenioides* in Mexico and Guatemala.
Puccinia cundinarcensis Mayor. Leaf rust on *V. verbascifolia* in Colombia.
Puccinia diaziana Arth. Chestnut-brown rust pustules on leaves of *V. encelioides* in Mexico.
Puccinia heterodonta Diet. and Holw. Powdery brown rust pustules on *V. diversifolia* and *V. myriocephala* in Mexico and Costa Rica.
Puccinia inveiata H. S. Jack. Leaf rust on *V. montanoifolia* in Mexico.
Puccinia irregularis Diet. Brown leaf rust on *V. pallens* and *V. subcordata* in Nicaragua and [illegible].
Puccinia spegazziniana Det. Leaf rust on *V. monteridensis* in Argentina.
Puccinia verbesinicola Diet. Leaf rust on *Verbesina* sp. in Ecuador.
Septoria balansae Speg. Indefinite leaf spots on *Verbesina* sp. and *Bidens laliantholdes* in Brazil.
Sphaerodothis pirifera (Speg.) Theiss. and Syd. Small, black stromata on leaves of *Verbesina* sp. in Brazil and Venezuela.
Uredo verbesinae-dentatae Syd. Brown rust sori on circular leaf spots on *V. dentata* in Ecuador.
VERNONIA. IRONWEED. Perennial herbs, shrubs, and trees; some ornamentals.
Aecidium banosense Syd. Leaf rust on *Vernonia* sp. in the Philippines.
Aecidium tarapotense P. Henn. Dull-brown rust sori on circular leaf spots on *Vernonia* sp. in Peru.
Aecidium vanderystianum P. Henn. Leaf rust on *Vernonia* sp. in Congo.
Aecidium vernoniae P. Henn. Yellow leaf rust on *Vernonia* sp. in Brazil.
Aecidium vernoniae-cinereae Petch. Rust on leaves of *V. cinerea* in Ceylon.
Aecidium vernoniae-hookerianae Petch. Yellow leaf rust on *V. hookeriana* in Ceylon.
Cercospora subtaleritia P. Henn. Leaf spot on *Vernonia* sp. in Congo.
Endophyllum vernoniae Arth. Powdery ochraceous rust pustules on leaves of *Vernonia* sp. in Nicaragua.
Melampsora ruspoliana P. Henn. Yellow-brown rust sori on leaves of *Vernonia* sp. in central Africa.
Phyllachora vernoniicola P. Henn. and var. **microspora** Theiss. and Syd. Small, scattered shiny black stromata on brown leaf spots on *V. tweediana* and *Vernonia* sp. in Brazil.
Puccinia arthuriana Jacks. Leaf rust on *V. albicaulis*, *V. arbuscula*, *V. bahamensis*, *V. borinquensis*, *V. cinerascens*, *V. myrtifolia*, and *V. sericea* in Porto Rico, the Bahamas, and Costa Rica.
Puccinia becki Mayor. Leaf rust on *V. cotoneaster* and *V. divaricata* in Colombia and Jamaica.
Puccinia discreta Jacks. and Holw. Brown leaf rust on *V. deppeana* and *V. stellaris* in Guatemala and Costa Rica.
Puccinia egregria Arth. Leaf rust on *V. uniflora* in Mexico.
Puccinia erratica Jacks. and Holw. Leaf rust on *V. schiedeana* in Guatemala.

VERNONIA—Continued.

Puccinia fraterna Jacks. Rust on leaves of *V. plurialis* in Jamaica.
Puccinia fuscella Arth. and Johnst. Brown leaf rust on *V. menthaefolia* in Cuba.
Puccinia hyalina Diet. Leaf rust on *V. scariosa* in Ceylon.
Puccinia idonea Jacks. and Holw. Brown leaf rust on *V. trifloscu'osa* in Guatemala and Costa Rica.
Puccinia inaequata Jacks. and Holw. Rust on leaves of *V. patens* in Guatemala.
Puccinia insulana (Arth.) Jacks. Brown rust pustules on leaves of *V. albicaulis, V. arborescens, V. divaricata,* and *V. longifolia* in Porto Rico, St. Croix, Antigua, Guatemala, and Jamaica.
Puccinia kuntzii Jacks. Leaf rust on *V. kuntzei* in Bolivia.
Puccinia le-testii Maubl. Leaf rust on *Vernonia* sp. in central Africa.
Puccinia lorentzii P. Henn. Yellow-brown to dark-brown rust pustules on leaves of *V. cinerea, V. lorentzii, V. molliss'ma,* and *V. scorpioides* in Brazil, Argentina, and Ceylon.
Puccinia membranacea Diet. Yellow and cinnamon-brown rust pustules on leaves of *V. cauloni* in Brazil.
Puccinia notha Jacks. and Holw. Leaf rust on *V. leiocarpa* and *V. shannoni* in Guatemala.
Puccinia pinguis Diet. Powdery chestnut-brown rust pustules on leaves of *V. platens* in Brazil.
Puccinia rota Jacks. and Holw. Brown leaf rust on *V. leiocarpa* in Guatemala.
Puccinia rotundata Diet. Cinnamon-colored rust pustules deforming leaf blades, petioles, and stems of *V. patens, V. scabra,* and *V. tweediana* in Costa Rica, Panama, Colombia, and Brazil.
Puccinia semiinsculpta Arth. Powdery cinnamon brown to dark-brown rust sori on leaves of *V. alamani, V. uictyophlebia, V. karwinskiana, V. serratuloides,* and *V. umbellifera* in Mexico.
Puccinia tonduziana Speg. Leaf rust on *V. trifloscu'osa* in Costa Rica and Guatemala.
Puccinia vernoniae-mollis Mayor. Leaf rust on *V. mollis* in Colombia.
Puccinia vernoniae-scariosae Petch. Brown leaf rust on *V. scariosa* in Ceylon.
Puccinia vernoniicola P. Henn. Ochraceous rust pustules on leaves of *Vernonia* sp. in tropical Africa.
Puccinia vernoniphila Speg. Leaf rust on *V. flexuosa* in Argentina.
Uredo pachystegia Diet. Brown leaf rust on *Vernonia* sp. in Brazil.
Uredo vernoniae P. Henn. Dull-brown rust pustules on circular leaf spots on *Vernonia* sp. in Congo.
Uredo vernoniae-hookerianae Petch. Leaf rust on *V. hookeriana* in Ceylon.
Uredo vernoniicola Petch. Brown leaf rust on *V. cinerea, V. setigera,* and *V. wightiana* in Ceylon.
Uromyces pressus Arth. and Holw. Leaf rust on *V. deppeana* in Guatemala and Costa Rica.

VERONICA. SPEEDWELL. Annual or biennial herbs or shrubs.

Aecidium disciforme McAlp. Rust distorting and thickening leaves of *V. calycina* and *V. gracilis* in Australia and Tasmania.
Aecidium veronicae Berk. Yellow rust pustules on lower leaf surfaces of *V. sibirica* and *Veronica* sp. in Japan and Australia.
Ascochyta veronica Rostr. On leaves of *V. saxatilis* in Denmark.
Clypeostroma hemisphaericum (Berk.) Theiss. and Syd. Small black stromata on leaves of *V. elliptica* and *V. odora* in New Zealand.
Gloeosporium pruinosum Baeml. and var. **tirolense** Kab. and Bub. Small subcircular, then confluent, brown spots on leaves, stems and capsules of *Veronica* spp. in Spain, Bulgaria, Denmark, and Austria.
Laestadia veronicae Rostr. On leaves of *V. alpina* in Iceland.
Olpidiaster radicis (Willd) Pascher. See Linum.
Ovularia chamaedryos Lindr. Subcircular gray-brown, then black, leaf spots on *V. chamaedrys* in Finland.
Ovularia veronicae (Fckl.) Sacc. and var. **microsticta** Sacc. On leaves of *Veronica* spp. in Ceylon, Sweden, Denmark, Italy, Esthonia, and Germany.
Peronospora agrestis Gäum. Downy mildew on leaves of *V. agrestis* and *V. polita* in Switzerland, Galicia, and Russia.
Peronospora arvensis Gäum. Downy mildew on leaves of *V. hederifolia* and *V. triphyllos* in Europe.
Peronospora grisea Unger. Downy mildew on leaves of *V. beccabunga* in Europe.
Peronospora palustris Gäum. Downy mildew on leaves of *V. scutellata* in Europe and Switzerland.
Peronospora saxatilis Gäum. Downy mildew on leaves of *V. fruticans* in Europe.
Peronospora silvestris Gäum. Downy mildew on leaves of *V. officinalis* and *V. urticifolia* in Europe.
Phyllosticta prostrata Brun. Gray-white leaf spots with dull-brown margins on *V. prostrata* in France.
Phyllosticta veronicae Thuem. On leaves of *V. longifolia* in Siberia.
Puccinia rhaetica Ed. Fisch. Powdery brown rust pustules on leaves of *V. bellidioides* in Switzerland. Reported from Washington.
Puccinia veronicae Schroet. Yellow-brown to brown rust pustules on leaves of *V. lutea* and *V. montana* in Europe.
Ramularia anagallidis Lindr. Circular to oblong pale-brown leaf spots on *V. anagallis* and *V. moretti* in Italy, Spain, Denmark, and Finland.
Ramularia beccabungae Fautr. Circular leaf spots on *V. beccabunga* in Denmark, France, and Austria.
Ramularia caruaniana Sacc. Subcircular, often concentrically zoned, leaf spots on *V. anagallis* in Malta.
Ramularia coccinea (Fckl.) Vester. (*R. pygmaea* Lindr.) Rufous-brown leaf spots on *V. chamaedrys, V. pygmaea, V. officinalis,* and *V. serpyllifolia* in Finland, Denmark, Sweden, Esthonia, Austria, and Germany.
Ramularia nivea Kab. and Bub. Subcircular, often confluent, dull yellow to brown leaf spots on *V. anagallis* in Bohemia.
Ramularia pseudococcinea Liro. Rufous to brown leaf spots with dark margins on *V. chamaedrys* in northern Europe and Spain. Said to be the same as *R. coccinea.*
Septoria exotica Speg. and var. **andersoni** Tassi. Confluent brown leaf spots on *V. andersoni, V. elliptica, V. salicifolia,* and *V. speciosa* in New Zealand, Argentina, Ecuador, Italy, and France.
Septoria triphylli Höll. On leaves of *V. triphyllos* in Hungary.
Septoria veronicicola Karst. On leaves of *V. formosa* in Italy.
Sorosphaera veronicae Schroet. Small irregular or cylindrical smut sori as outgrowths from leaves of *V. chamaedrys, V. hederaefolia,* and *V. triphyllos* in Sweden, Denmark, and France.
Synchytrium globosum Schroet. See Potentilla.

VESICARIA. Annual or perennial herbs cultivated in gardens.

Septoria cercosperma Rostr. On leaves of *V. arctica* in Greenland.

VIBURNUM. Ornamental shrubs grown for their attractive flowers, fruit, and foliage.

Aecidium viburni Henn. and Shir. Leaf rust on *V. burejelicum, V. dilatatum, V. formosanum* and *V. sargenti* in Russia and Japan.
Aecidium viburnophilum Syd. Leaf rust on *V. opulus* in Japan.
Ascochyta tini Sacc. Ochraceous leaf spots on *V. tinus* in Italy.

VIBURNUM—Continued.
Ascochyta viburni (Roum.) Sacc. Brown spots with brown-purple margins on branches of *V. lantana* and *V. opulus* in France, Denmark, Austria, and Germany.
Cercospora penicillata Fckl. On leaves of *V. opulus* in Siberia, Italy, Portugal, and Germany.
Cercospora tinea Sacc. On leaves of *V. tinus* in Portugal.
Laestadia tuscula Pass. Subcircular to irregular gray-white leaf spots on *V. tinus* in Italy.
Meliola viburni Syd. Superficial black fungus patches on leaves of *V. odoratissimum* in China and the Philippines.
Mycosphaerella crepidophora (Mont.) Rehm. Circular dull-brown leaf spots on *V. tinus* in Corsica, Dalmatia, Portugal, and Tunis.
Mycosphaerella viburni (Nitsch) Fckl. On leaves of *V. lantana* and *V. opulus* in Italy and Germany.
Phyllosticta lantanae Pass. See Lantana.
Phyllostica lantanicola Sacc. Irregular ochraceous, then gray-white, leaf spots on *V. lantana* in Bohemia.
Phyllosticta opuli Sacc. On leaves of *V. opulus* in Europe.
Phyllosticta roumeguerii Sacc. Indefinite gray leaf spots on *V. opulus* and *V. tinus* in Europe.
Phyllostica tinea Sacc. Subcircular to irregular gray-white leaf spots on *V. tinus* in Italy.
Phyllosticta viburni Pass. Large irregular gray or rose-gray leaf spots on *T. tinus* in France and Portugal.
Placosphaeria viburni P. Henn. Black subcarbonaceous stromata on leaves of *V. dilatatum* in Japan.
Puccinastrum miyabeanum Hirats. Yellow rust pustules on leaves of *V. furcatum* in Japan.
Rhytisma viburni P. Henn. Black stromata on leaves of *V. dilatatum* and *V. luzonicum* in the Philippines.
Septoria tini (Arc.) Sacc. Irregular ashen-brown leaf spots with purple margins on *V. tinus* in Italy.
Septoria viburni West. On leaves of *V. lantana* and *V. opulus* in Great Britain, Denmark, Belgium, and Italy.

VICIA. VETCH. Annuals cultivated for forage and flowers.
Ascochyta bolthauseri Sacc. See Phaseolus.
Ascochyta fabae Speg. Circular to irregular, then confluent, dull-tan leaf spots on *V. faba* in Argentina.
Ascochyta phaseolorum Sacc. See Phaseolus.
Ascochyta viciae-lathyroides Syd. Large gray-white areas on leaves of *V. lathyroides* in Germany.
Ascochyta viciae-pisiformis Bub. Subcircular to irregular, then confluent, dull-yellow leaf spots with rufous margins on *V. pisiformis* in Bohemia.
Cephalotheca francisci Sacc. On stems of *V. faba* in Italy.
Cercospora fabae Fautr. Dark-purple, zoned, then confluent, leaf spots with gray centers on *V. faba, V. gigantea*, and *V. narbonensis* in China, Russia, Italy, Bohemia, and France.
Cercospora zonata Wint. On leaves of *V. faba* and *Phaseolus vulgaris* in Brazil, Portugal, Russia, Italy, and Germany.
Cercosporella viciae Siem. Leaf spot on *V. aurantia* in Poland.
Didymaria lindaviana Jaap. Large pale-brown leaf spots on *V. cracca* in Germany.
Erysiphe taurica Lév. See Althaea.
Gloeosporium tricolor Lind. Circular dark-brown leaf spots with paler margins on *V. cracca* in Sweden and Denmark.
Hypochnus cucumeris Frank. See Cucumis.
Microsphaera bäumleri P. Magn. Powdery mildew on leaves of *V. cassubica* and *V. sylvatica* in Great Britain, Russia, Italy, Austria, Hungary, and Germany.
Ovularia fallax (Bon.) Sacc. On leaves of *V. cracca, V. cassubica, V. pyrenaica*, and *V. villosa* in Spain and Germany.
Ovularia schwarziana Magn. Brown leaf spots on *V. villosa* in Denmark and Germany.
Ovularia sphaeroidea Sacc. See Lotus.
Ovularia viciae (Frank.) Sacc. Brown leaf spots on *V. cassubica* and *V. tenuifolia* in Denmark and Germany.
Ovularia villiana P. Magn. On leaves of *V. cassubica* in Germany.
Peronospora sepium Gäum. Downy mildew on leaves of *V. sepium* in Scotland, central and northern Europe.
Peronospora viciae (Berk.) Gäum. Downy mildew on leaves of *V. grandiflora, V. hirsuta, V. lathyroides, V. pisiformis, V. tenuifolia*, and *V. tetrasperma* in Europe.
Phyllachora lathyri (Lév.) Theiss. and Syd. See Lathyrus.
Phyllosticta fabae West. Dull-brown leaf spots on *V. faba, V. sativa*, and *V. villosa* in Russia, Sweden and Belgium.
Phillosticta viciae (Lib.) Cke. Subcircular to oblong ochraceous to brown leaf spots with dark margins on *V. faba* and *V. sepium* in Russia, France, and Belgium.
Rhizoctonia napi West. See Brassica.
Rhytisma onobrychidis DC. See Onobrychis.
Septoria silvestris Pass. See Lathyrus.
Septoria viciae West. Dull-brown leaf spots on *V. angustifolia, V. pyrenaica*, and *V. sativa* in Denmark, Russia, Spain, and Italy.
Stagonospora carpathica Baeuml. Small circular to subcircular red-brown spots appear on the leaves, petioles, stems, and pods, changing to dark-brown with red-brown margins, and finally to gray-brown. Infected plants often die. The hosts are *Vicia faba* in Japan and *Melilotus alba* and *M. officinalis* in central Europe.
Uromyces briardi Har. Brown rust pustules on leaves of *V. sativa* in France.
Uromyces clavatus Diet. See Lathyrus.
Uromyces corrugatus Speg. Powdery brown rust pustules on leaves of *V. patagonica* in Patagonia.
Uromyces fischeri-eduardi P. Magn. Powdery brown rust pustules on leaves of *V. cracca* and *Euphorbia cyparissia* in Europe.
Uromyces heimerlianus P. Magn. Brown rust pustules on leaves of *V. hirsuta* and *V. pannonica* in Yugoslavia, Hungary, and Austria.
Uromyces johowii Diet. and Neg. Yellow to brown rust pustules on leaves of *V. nigricans* in Chile.
Uromyces nordenskjöldii Diet. Yellow-brown rust pustules on leaves of *Vicia* sp. in South America.
Uromyces orobi (Pers.) Lév. See Lathyrus.
Uromyces unijugae Ito. Leaf rust on *V. unijuga* in Japan.
Uromyces valesiacus Ed. Fisch. Yellow and brown leaf rust on *V. onobrychioides* in Macedonia and Switzerland.
Uromyces viciae-craccae Const. Powdery brown rust pustules on leaves of *V. cracca, V. tenuifolia*, and *Lens esculenta* in Europe.
Uromyces viciae-unijugae S. Ito. Leaf rust on *V. unijuga* in Japan.

VIGNA. COWPEA. Herbs grown as vegetables, forage, and green-manure crops.
Aecidium caulicola P. Henn. Rust on stems of *Vigna* sp. in Central Africa.
Aecidium nigro-cinctum Pat. and Har. Leaf rust on *Vigna* sp. in Indo-China.
Aecidium vignae Cke. Leaf rust on *V. catjang*, *V. marginata*, and *V. sinensis* in Ceylon, Uganda, and Union of South Africa.
Ascochyta phaseolorum Sacc. See Phaseolus.
Ascochytopsis vignae P. Henn. Dull-brown leaf spots on *V. vexillata* in east Africa.
Auerswaldia vignae P. Henn. Clear brownish spots on leaves of *V. vexillata* in Tanganyika.
Cercospora vanderysti P. Henn. Effuse brown leaf spots on *V. venulosa* in the Congo.
Hypochnus cucumeris Frank. See Cucumis.
Mycosphaerella phaseolorum Jachw. On leaves of *V. rubra* in Russia.
Phyllachora phaseolina Syd. See Phaseolus.
Phyllosticta phaseolorum Sacc. and Speg. Ochraceous leaf spots on *V. sinensis* and *Phaseolus vulgaris* in Japan, Formosa, and Italy.
Phyllosticta vignae Speg. Circular pale dull-brown leaf spots on *V. luteola* in Argentina.
Puccinia sp. Leaf rust on *V. angustifolia* in the Union of South Africa.
Rhizoctonia sp. Diseased plants wilt and die, the stems at the ground level being blackened and covered with numerous tiny black sclerotia. Among the hosts are *V. catjang*, *V. unguiculata*, *Corchorus capsularis*, *C. olitorius*, *Dolichos lablab*, *D. biflorus*, *Cucurbita* sp., *Citrullus* sp., *Gossypium* sp., *Lycopersicum esculentum*, *Medicago sativa*, *Nicotiana tabacum*, *Phaseolus lunatus*, *P. radiatus*, *Sesamum indicum*, and *Solanum tuberosum* in India.
Rhizoctonia dimorpha Matz. See Phaseolus.
Septoria vignae P. Henn. Circular dull-brown leaf spots on *Vigna* sp. in the Congo.
Uredo purpurascens P. Henn. Rust on circular to effuse purple spots on leaves and stems of *Vigna* sp. in the Congo.
Uredo vignae Bres. Brown leaf rust on *V. lutea*, *Glycine hispida*, *Phaseolus mungo*, and *Phaseolus* sp. in the Philippines and St. Thomas.
Uromyces pazschkeanus P. Henn. Black rust sori on leaves of *V. membranacea* and *V. triloba* in Abyssinia and Arabia.
Uromyces punctiformis Syd. Powdery black rust pustules on leaves of *V. strobiliphora* in Mexico.
Uromyces vignae Barcl. Brown to black rust pustules on leaves of *V. vexillata* in India.
Vermicularia capsici Syd. See Capsicum.

VIGUIERA. Shrubby or herbaceous composites.
Coleosporium viguieriae Diet. and Holw. Golden rust pustules on leaves of *V. helianthoides* in Mexico.
Puccinia ensenadensis Speg. Powdery black rust pustules on leaves of *Viguiera* sp. in Argentina.
Puccinia inopinata Syd. Dark-brown rust pustules on leaves of *V stenophylla* in Argentina.
Puccinia nanomitra Syd. Powdery black rust pustules on leaves of *V. dentata*, *V. eriophora*, and *V. helianthoides* in Mexico.
Puccinia punctoidea Syd. Black rust pustules on leaves of *V. prinolei* in Mexico.
Puccinia subglobosa Diet. and Holw. Brown leaf rust on *V. palmeri* in Mexico.

VINCA. PERIWINKLE. Erect and procumbent herbs or subshrubs cultivated for their flowers.
Colletotrichum vincae Speg. Circular ashen leaf spots on *V. major* in Argentina.
Macrophoma cylindrospora Desm. See Hedera.
Metasphaeria vincae (Fr.) Sacc. On leaves of *V. minor* in Italy, France, and Germany.
Peronospora vincae Schroet. Downy mildew on leaves of *V. major* and *V. minor* in France and Russia.
Phytophthora parasitica Dast. See Ricinus.
Phyllosticta vincae Thuem. and var. **pedrosensis** Gz. Frag. Large irregular dull-brown to gray leaf spots on *V. media* and *V. minor* in Spain, Portugal, and France.
Phyllosticta vincae-majoris Allesch. Subcircular ochraceous leaf spots on *V. major* in Germany.
Phyllosticta vincae-minoris Bres. and Krieg. Dull-brown leaf spots on *V. minor* in Albania, Yugoslavia, and Germany.
Phyllosticta vincicola Oud. Irregular black leaf spots on *V. major* in Holland.
Puccinia vincae (DC.) Berk. Brown to black rust pustules on leaves of *V. acutiflora*, *V. herbacea*, *V. major*, *V. media*, and *V. minor* in Europe and Algeria. Reported from Massachusetts and Michigan.
Ramularia vincae Sacc. and var. **vincae-mediae** Maire. Yellow indefinite leaf spots on *V. major* and *V. media* in Spain and the Balearic Islands.

VIOLA. VIOLET. Pansy. Perennial herbs, cultivated for their flowers.
Aphelenchus olesistus Ritz. Bos. var. **longicollis** Schwartz. This nematode attacks the bases of the leaves and flower stalks of cultivated *Viola*, causing hypertrophy, with consequent stunting and fasciation and finally production of galls. The disease occurs in Europe.
Ascochyta violae-hirtae Bub. White subcircular leaf spots with brown margins on *V. hirta* in Yugoslavia.
Ascochyta violicola McAlp. Yellow to gray-white circular to ovate leaf spots on *V. odorata* in Australia.
Cercospora sp. Trail. Indefinite dull-brown leaf spots on *V. palustris* in Scotland.
Cercospora lilacina Bres. On leaves of *V. palustris* in Germany.
Cercospora violae-sylvaticae Oud. Subcircular pale-brown leaf spots on *V. sylvestica* in Holland.
Cercospora violae-tricoloris Br. and Cav. Large subcircular ashen leaf spots on *V. tricolor* in Italy and Spain.
Cladochytrium violae Berl. On leaves of *V. odorata* in Europe.
Entyloma anzianum Pass. Smut sori on subcircular yellow leaf spots on *V. biflora* in Italy.
Fusisporium lacteum Desm. On leaves of *V. odorata* in France.
Hendersonia triseptata Da Cav. Subcircular leaf spots on *V. alba* in Portugal.
Laestadia violae (Lib.) Sacc. On leaves of *V. odorata* in Belgium.
Melampsora lapponum Lindf. See Salix.
Mycosphaerella violae A. Pot. On leaves of *V. hirta* in Russia. Possibly the perfect stage of *Ramularia hirta* Sacc.
Oyularia acutata (Bon.) Sacc. Small ashen leaf spots with dull-brown margins on *V. odorata* and *V. sylvatica* in Sweden and Germany.
Peronospora violae De By. A downy mildew destroying the leaves of *V. biflora*, *V. tricolor*, and other species in Europe. American collections referred to this species should be referred to *Bremiella megasperma* (A. Berl.) G. W. Wils.
Phyllosticta libertianae Sacc. and March. Circular black leaf spots on *V. biflora* and *V. odorata* in Great Britain, France, Belgium, and Italy.
Phyllosticta tricoloris Sacc. On leaves of *V. odorata* and *V. tricolor* in Russia.
Puccinia cingens Bomm. and Rouss. Yellow and black rust pustules on leaves of *Viola* in Patagonia.

VIOLA—Continued.

Puccinia depauperans (Vize.) Syd. Yellow and brown to black rust pustules on leaves and stems of *V. cornuta*, *V. lutea*, *V. tricolor*, and *V. willkommii* in Europe.

Puccinia hederaceae McAlp. Powdery black rust pustules on leaf blades, petioles, and stems of *V. hederacea* and *V. hederacea* in Australia and Tasmania.

Puccinia violae-glabellae Miura. Powdery brown rust pustules on leaves of *V. glabella* in Japan.

Ramularia acutata Bon. Subcircular, then confluent, spots occupying entire surface of leaf blades of *V. canina*, *V. riviniana*, *V. silvatica*, and *V. sylvestris* in Denmark, Russia, Scotland, and Austria.

Ramularia agrestis Sacc. Small subcircular olivaceous leaf spots on *V. altaica* and *V. tricolor* in Denmark, Esthonia, and Italy.

Ramularia biflorae P. Magn. Subcircular greenish brown, then gray-white, irregularly zoned leaf spots on *V. biflora* in Austria.

Ramularia deflectens Bres. On leaves of *V. tricolor* in Russia, Denmark, and Germany.

Ramularia lactea Desm., Sacc. Circular gray-white leaf spots with brown margins on *V. canina*, *V. riviniana*, *V. silvestris*, and *V. tricolor* in Europe and Argentina. Reported from Montana and Colorado.

Septoria australiae McAlp. Circular to irregular red-brown leaf spots with dark-brown margins on *V. hederacea* in Australia.

Septoria violae-palustris Died. On leaves of *V. palustris* in Austria.

Septoria violicola Sacc. On leaves of *V. biflora* in Great Britain, Switzerland, and Germany.

Synchytrium alpinum Thomas. Small galls on leaves and stems of *V. biflora* in Italy and Switzerland.

Synchytrium globosum Schrpet. See Potentilla.

Uredo alpestris Schrpet. Leaf rust on *V. biflora* in Japan, Switzerland, and Austria.

Urocystis violae Fisch. Spots and causing blistering and distortion of leaf blades and petioles of *V. canina*, *V. riviniana*, and *V. tricolor* in Great Britain, France, Italy, Denmark, and Germany. The petioles finally split irregularly, exposing black sooty spore masses. Also reported from Utah and Wyoming on wild species.

VITEX. Shrubs and trees, ornamental shrubs and trees with white or blue flowers.

Asterina vitex [illegible] on *Vitex* in Trinidad.

Bezzimeriosporium vitis Syd. Ashy-gray leaf spots on *V. flavens* in Brazil.

Phaeosaccardinula carinata Speg. Shiny black circular stromata on leaves of *V. monteridensis* and *Vitex* sp.

Phyllachora vitexicola P. Henn. Shiny black stromata on clear brown leaf spots on *Vitex* sp. in Java.

Ramularia vitis Sacc. Circular to irregular brown leaf spots on *V. trifolia* in India.

Uredo saccharoskiana Speg. and Rant. Yellow leaf rust on *V. leucoxylon* in Java.

Uredo vitis Thüm. Leaf rust on *V. negundo* in Java.

Uredo vitis Speg. Leaf rust on *Vitex* sp. in Uruguay. Hennings gives the same name to a species on *V. polygama* in Java.

Uredo vitis-agnus-castus P. Henn. Dull-brown rust pustules on circular leaf spots on *V. polygama* in Java.

VITIS. Woody vines.

Aecidium vitis P. Henn. Rust pustules in yellow-brown leaf spots on *V. quinata* in Tanganyika.

Alternaria vitis Prill. Angular leaf spots on *V. vinifera* and *V. quinquefolia* in France.

Ascochyta baccae Speg. [illegible] on *V. vinifera* in Argentina.

Ascochyta viticola Desm. [illegible] on leaves of *V. vinifera* in Australia.

Aureobasidium vitis Viala and Boyer. Dark-brown to black spots on leaves, causing drying up of leaf tips, irregular [illegible] on *V. vinifera* in Russia, France, Denmark, and Italy.

Bacillus [illegible] Smith. Bacteriosis of the leaves, stripes on young branches, and [illegible] on the base of stems [illegible] (*Bacterium tumefaciens*).

Bacillus [illegible] and Mace. Bacteriosis of *V. vinifera* in Italy.

Bacillus [illegible] Spegazzini. Bacteriosis of the leaves, stripes on young branches, and dark lines in the wood of *V. vinifera* in Argentina and Italy.

Cercospora vitis [illegible] on yellow to [illegible] leaf spots on *V. vinifera* in Europe [illegible].

Cercospora [illegible] on [illegible] of *V. bryoniifolia* in [illegible] causing defoliation.

Ascochyta [illegible] on *V. vinifera* in Russia.

Botrytis [illegible] on *V. vinifera* in Austria.

Botrytis [illegible] Mor. See Morus.

Cercospora [illegible] on [illegible] of *V. bryoniifolia* in [illegible].

Cercospora [illegible] on *V. vinifera* in Italy.

Marssonina [illegible] on *V. vinifera* in Italy.

Marssonina [illegible] on *V. vinifera* in Italy.

Phaeoramularia [illegible] on *V. vinifera* in Italy and Germany.

Phaeoramularia vitis [illegible] on leaves of *V. quinquefolia* in [illegible].

Phyllosticta [illegible] on *V. vinifera* in Europe.

Phyllosticta [illegible] on *V. vinifera* in Europe.

Phyllosticta [illegible] on *V. vinifera* in Europe.

VITIS—Continued.
Phyllosticta succedanea (Pass.) Allesch. Dark-brown leaf spots on *V. vinifera* in Italy.
Phyllosticta viticola Sacc. and Speg. Gray-white leaf spots on *Vitis* sp. in Italy.
Phyllosticta vitis Sacc. Irregular gray leaf spots with brown borders on *V. vinifera* in Italy and central Europe.
Pseudopeziza tracheiphila Miller-Thurg. Said to attack the leaves of *V. vinifera* in Europe, causing the disease known as "rotbrenner."
Pseudocercospora vitis (Lév.) Sacc. On leaves of *V. rupestris* in Argentina and Brazil.
Septocylindrium dissiliens (Duby.) Sacc. Causes a drying of the leaves of *Vitis* sp. in Italy.
Septoria melanopsis Pat. Small numerous angular blackish leaf spots on *V. vinifera* in Tunis, Brazil, England, and Italy.
Septoria tassiana Syd. (*S. antarctica* Tass.) Red-ochraceous leaf spots on *V. antarctica* in Italy.
Valsaria ampleina Averna. A wound parasite causing cankers of stems and twig die-back of *V. rupestris* and *V. vinifera* in Brazil.

VITTADINIA. Composite herbs with white, yellow, or blue flower heads.
Puccinia vittadeniae McAlp. Yellow and brown rust pustules on leaves of *V. australis* in Victoria.

VOCHYSIA. Resinous tropical trees.
Aecidium vochysiae P. Henn. Leaf rust on *Vochysia* sp. in Brazil.
Phyllachora congregata Theiss. and Syd. Dull-black stromata on leaves of *V. elliptica* in Brazil.
Phyllachora granulosa Lév. Black stromata on large leaf spots, yellow beneath, gray-brown above, on *Vochysia* sp. in Brazil.
Phyllachora lehmanniana P. Henn. Black stromata on leaves of *V. lehmanni* in Colombia.
Phyllachora vochysiae P. Henn. Black stromata on leaves of *V. haenkeana* in Brazil.

VOUACAPOUA. See Andira.

WARNERIA. See Gardenia.

WATSONIA. MERIANA Ag. BUGLE LILY. Summer-flowering bulbous herbs resembling *Gladiolus*.
Uromyces watsoniae Syd. Brown to dark-brown or black rust pustules on both leaf surfaces of *W. densiflora* in the Union of South Africa.

WEDELIA. Composite annual or perennial herbs or subshrubs.
Aecidium wedeliae-hispidae Diet. Leaf rust on *W. hispida* in Mexico.
Endophyllum wedeliae (Earle) W. and O. Yellow rust pustules on leaves of *W. trilobata* in Porto Rico, Haiti, and Trinidad.
Laestadia lorentzii Speg. Circular to angular pale-yellow leaf spots with ashen centers on *W. glauca* in Argentina.
Puccinia ecuadorensis Arth. Brown leaf rust on *Wedelia* sp. in Ecuador.
Puccinia wedeliae Mayor. Leaf rust on *W. trichostephia* in Colombia.
Septoria lorentzii Speg. Circular to angular leaf spots on *W. glauca* in Argentina.
Uredo nerviseda Syd. Leaf rust on *W. biflora* in the Philippines.
Uredo vicina Arth. Leaf rust on *W. jacquini* and *W. lanceolata* in Porto Rico and Trinidad.
Uredo wedeliae-biflorae Syd. Cinnamon-brown rust pustules on leaves of *W. biflora* in the Philippines.
Uromyces baccarinii Syd. Powdery dark-brown rust pustules on leaves of *Wedelia* sp. in Abyssinia.
Uromyces piauhyensis P. Henn. Brown rust pustules on leaves of *W. reticulata*, *W. rugosa*, and *Wedelia* sp. in Brazil, Porto Rico, and Cuba.
Uromyces wedeliae P. Henn. Brown rust pustules on leaves of *W. prostrata* and *Wedelia* sp. in Japan, the Philippines, and Abyssinia.

WELWITSCHIA. TUMBOA Ag. Peculiar low, woody coniferous desert plants.
Ustilago welwitschiae Bres. Powdery dull-brown smut sori in the cone scales of *W. mirabilis* in south Africa.

WIGANDIA. Tall perennial herbs or subshrubs, used as bedding plants or grown in greenhouses.
Phyllosticta wigandiae Thuem. On leaves of *W. imperialis* in south Europe.

WIKSTROEMIA. Ornamental shrubs and trees.
Melampsora yoshinagai P. Henn. Powdery yellow, then dark-brown, rust pustules on leaves of *W. canescens*, *W. indica*, *W. japonica*, and *W. sikokiana* in Japan, Formosa, China, and India.

WISTERIA. KRAUNHIA Ag. Attractive woody climbers with pea-shaped flowers.
Ascochyta wistariae Tassi. Leaf spots on *W. sinensis* in Italy.
Bacterium montemartinii Pav. Causes large irregular hollow spots on branches of *Wisteria* sp. in Italy.
Mycosphaerella wistaricola Turc. Causes a leaf spot of *W. chinensis* in Italy. Probably the perfect stage of *Ascochyta wisteriae* Fl. Tass.
Ochropsora kraunhiae Diet. Yellow and brown rust pustules on leaves of *W. sinensis* and *W. floribunda* in Japan.
Phyllosticta affinis Tass. On leaves of *W. sinensis* in Italy.
Phyllosticta wistariae Sacc. Ochraceous leaf spots on *W. floribunda* (*W. brachybotrys*) and *W. sinensis* in Italy and France. Reported from Texas.
Septoria wistariae Brun. Irregular brown leaf spots on *W. sinensis* in France. Tharp has given the same name to a form on *W. sinensis* in Texas.

XANTHORRHOEA. GRASS TREE. Perennials with a thick woody caudex.
Coniothyrium xanthorraeae P. Henn. Pale-brown leaf spots on *X. gracilis* in Australia.

XANTHOSOMA. MALANGA. Yautia. Ornamental-leafed aroids, corms of some species edible.
Phyllosticta xanthosomatis Sacc. Subcircular dull-yellow leaf spots on *Xanthosoma* sp. in Mexico.
Phytophthora sp. A downy mildew is considered the cause of a wilt and soft white rot of the corms of *Xanthosoma* sp. in Hawaii and the Philippines. A similar parasite may be concerned in the wilt disease of *Xanthosoma* in Porto Rico. These diseases have not been studied in detail and the fungus present may be *P. colocasiae* Rac. See Colocasia.
Vasculomyces xanthosomae Ashby. This fungus was found in Jamaica in connection with a wilting and tuber rot of *X. sagittifolium*. The fungus discolors the vascular bundles and sets up a brown rot, cavities forming in the tissues. The leaves turn yellow.
Vermicularia xanthosomatis Sacc. Leaf spot on *X. sagittifolium* in China and the Philippines.

XANTHOXYLUM. See Zanthoxylum.

XERANTHEMUM. Annual erect tomentose herbs.
Puccinia xeranthemi Mori. Brown rust pustules on leaves and stems of *X. annuum* in Italy.

XYLOPIA. Shrubs and trees, grown for their fruit and other products.
Aecidium xylopiae P. Henn. Leaf rust on *Zylopia* sp. in Brazil.
Diplochorella fertilissima Syd. Black stromata on leaves of *X. aethiopica* in Tanganyika.
Phyllachora zylopiae P. Henn. Irregular black stromata on large brown leaf spots on *X. grandiflora* in Peru.
Phyllosticta xylopiae Sacc. Subcircular white leaf spots with black raised margins on *Zylopia* sp. in Mexico.
Puccinia foveolata (B. and C.) P. Henn. (*Puccinia gregaria* Kze.) Dark-brown rust pustules on leaves of *X. grandiflora* and *Xylopia* sp. in Guatemala, Peru, Surinam, and Brazil.

XYLOSMA. Tropical trees and shrubs.

Phyllachora pittieri Speg. See Myrsine.

Phyllachora xylosmatis Speg. Smooth black stromata on leaves of *X. pubescens* in Argentina.

Phyllosticta tonduzi Speg. On leaves of *X. salzmanni* in Costa Rica.

Uredo recondita Speg. Leaf rust on *X. salzmanni* in Costa Rica.

YUCCA. Ornamental stiff-leaved plants.

Colletotrichum yuccae Pöll. Anthracnose on leaves of *Y. filamentosa* in Italy.

Gloeosporium victoriosum Sacc. Leaf anthracnose of *Y. gloriosa* in Spain and Italy.

Sclerotium yuccae Roum. On *Yucca* sp. in France.

Septoria macrospora Alm. and Cam. On leaves of *Y. aloifolia* in Portugal.

ZANTEDESCHIA. CALLA. Perennial herbs grown for their ornamental corolla-like spathes.

Bacillus sp. A bacillus said to be distinct from *B. aroidae* Town. attacks *Zantedeschia* in Great Britain. Diseased plants stop developing, the tops turning yellow and wither, while roots and corms are attacked by a soft watery brown rot.

Gloeosporium callae Oud. Large yellow, then brown, leaf spots on *Z. aethiopica* in Holland.

Ramularia richardiae Kalchbr. On leaves of *Z. albomaculata* in the Union of South Africa.

Septoria callae (Lasch.) Sacc. Small, olivaceous leaf spots on *Z. palustris* in Germany.

ZANTHOXYLUM. PRICKLY ASH. Trees and shrubs grown for their handsome foliage and ornamental fruit.

Acanthothecium mirabile Speg. On leaves of *Zanthoxylum* sp. in Brazil.

Aecidium spissum Syd. Leaf rust on *Zanthoxylum* sp. in India.

Aecidium zanthoxyli-schinifolii Diet. Rust on yellow or brown spots on leaf blades and petioles of *Z. schinifolium* in Japan.

Bacterium citri Hasse. See Citrus.

Coleosporium xanthoxyli Diet. and Syd. Yellow rust pustules on leaves of *Z. ailanthoides*, *Z. bungei*, *Z. piperitum*, and *Z. schinifolium* in Japan, Formosa, and China.

Helicobasidium tanakae Miy. See Morus.

Phyllachora applanata Wint. Subcircular to elliptic, black stromata on leaves of *Zanthoxylum* sp. in Brazil.

Phyllachora tijucensis (Rehm.) Theiss. and Syd. Circular black stromata on dark-brown leaf spots on *Zanthoxylum* sp. in Brazil.

Phyllachora winteri Sacc. and Syd. Black stromata on leaves and leaf-sheaths of *Z. hiemale*, *Z. rhofolium*, and *Zanthoxylum* sp. in Brazil.

Phyllachora zanthoxyli (Lév.) Cke. Black stromata on leaves of *Zanthoxylum* sp. in Java and Brazil.

Sorokina uleana Rehm. On leaves of *Zanthoxylum* sp. in Brazil.

Uredo asperata B. and C. Brown rust pustules on leaves of *Z. piperitum* in Japan.

Uredo fagarae Syd. Leaf rust on *Z.* (*Fagara*) *nitidum* in Japan and Formosa.

ZEA. MAIZE. INDIAN CORN.

Dothiorella zeae Foex and Berth. Grain, cobs, and glumes overgrown and rotted by mycelium of the fungus. On *Z. mays* in Indo-China.

Fusarium maydiperdum Bub. Causes a rot of cobs of *Z. mays* in Bulgaria.

Nigrospora panici Zimm. See Triticum.

Phyllachora maydis Maubl. Circular to elongate slightly raised black stromata on leaves of *Z. mays* in Porto Rico, Cuba, and Mexico.

Physoderma maydis Miy. Numerous circular to elliptical or linear, then confluent, brown spots on culms, mid ribs, and base of husks of *Z. mays* in Japan. Possibly not distinct from *P. zeae-maydis* Shaw, which occurs in India and the southern United States.

Puccinia pallescens Arth. See Tripsacum.

Rhizoctonia palida Matz. See Saccharum.

Sclerospora sp. A downy mildew of *Z. mays*, characterized by broad, pale-green stripes on the leaves, is reported from the Union of South Africa.

Sclerospora javanica Palm. Young plants remain stunted, with narrow, yellow or greenish-yellow leaves, with poorly developed root systems. Older plants show the yellow-striped leaves and in more advanced cases narrow, sharply defined yellow or brown stripes. The host is *Z. mays* in Java.

Sclerospora macrospora Sacc. See Triticum.

Sclerospora maydis (Rac.) Butl. The upper parts of infected plants turn white due to the disappearance of the chlorophyll in long streaks along the leaves. Growth of the plants is checked and the internodes are frequently shortened so as to give a bunchy appearance. No grain is produced, the plants withering and dying before harvest time. In addition to *Zea*, *Coix lachrymi-jobi*, and *Euchlaena mexicana* are attacked. This species is known only from India, although it has been confused with *S. javanica*, the Javan species, and reported from that country.

Sclerospora philippinensis Weston. This downy mildew is a very serious enemy of *Zea mays* in the Philippines, and together with *S. spontanea* would appear to be the limiting factor in corn production. Additional hosts are *Euchlaena luxurians* and *Holcus sorghum* and by inoculation *Saccharum spontaneum* and *Miscanthus japonicus*.

Plants of all ages are attacked. Young plants, when attacked, show at the base of the upper leaves two or three narrow linear stripes pale-yellow to white in color. Leaves developing above these are almost completely yellow or whitish, remain narrow, and become rigid instead of bending in normal manner. The leaf sheaths continue to develop and may inclose or grow beyond the stunted tassel. The plants remain dwarfed. The roots also become stunted. Such plants are either destroyed by secondary organisms (*Pythium*) or turn brown, wither, and die. Older plants when attacked show the same stripes, generally on the fourth or fifth leaves, but more extensive and broader. Subsequent leaves show the striping to an even greater degree, the last leaves being striped throughout their length. The leaves themselves are not altered in size but at times the midribs become brittle, break at the union with the sheaths, and hang straight down along the stems. The root systems are not affected. The tassels may appear normal, but there is a decreased pollen production. Ears are only partly produced, and then always abnormal. Malformations of many kinds occur, including fasciations and reduplications, torsions of the stem, and other abnormalities.

Sclerospora sacchari Miy. See Saccharum.

Sclerospora spontanea Weston. This species of downy mildew causes a disease not distinguishable macroscopically from that due to *S. philippinensis*. It appears to be limited to the southern part of the Philippine Islands, where it occurs naturally on *Z. mays*, *Saccharum officinarum*, and *S. spontaneum*. By artificial inoculations the fungus has been found capable of attacking in addition *Euchlaena luxurians* and *Miscanthus japonicus*.

Septoria maydis Schulz. and Sacc. On leaf sheaths of *Z. mays* in Spain and Bohemia.

Sphaerulina maydis P. Henn. Circular to angular brown leaf spots on *Z. mays* in Brazil.

Ustilago abortifera Speg. A smut involving ovaries and often rachides in dark-brown powdery spore masses. On *Z. mays* in Argentina. Probably not distinct from *U. maydis*.

[Undet.] An undetermined fungus is reported from South Africa as destroying grain of *Z. mays* during germination.

ZENOBIA. Ornamental evergreen shrubs.
Phyllosticta andromedae West. See Pieris.
ZEPHYRANTHES. ATAMOSCO Ag. ZEPHYR LILY. Tunicate bulbous herbs.
Aecidium zephyranthis Shear. Yellow leaf rust on *Zephyranthes* sp. in Mexico.
Septoria psittacina F. Tassi. Circular to irregular yellow leaf spots, which often become confluent, on both leaf surfaces of *Z. lindleyana* in Italy.
ZINGIBER. GINGER. Perennial rhizomatous herbs.
Bacillus zingiberi Uyeda. Reported as the cause of a soft rot of the rhizomes of *Z. officinale* in Japan. Infected plants turn yellow and wither.
Mycosphaerella zingiberi Shir. and Hari. On leaves of *Z. mioga* in Japan.
Phyllosticta zingiberi Shir. and Hari. On leaves of *Z. officinale* in Japan.
Piricularia zingiberi Nish. Leaf spot on *Z. mioga* and *Z. officinale* in Japan.
Pythium butleri Subra. The leaves of infected plants turn yellow and die, hanging down parallel to the stem, due to a soft rot which works into the bases of the shoots and down into the rhizomes. The latter are completely destroyed. On *Z. officinale* in India.
Taphrina maculans Butl. See Curcuma.
Vermicularia zingiberae. Small circular to oval yellow spots on both leaf surfaces of *Z. officinale* in India. The spots increase in size and become coalescent, forming large discolored patches. The centers often dry up and drop out. The leaf sheaths and scaly portions of the stems are similarly attacked. The disease causes reductions in yield.
ZINNIA. Annuals grown in gardens for their flowers.
Ascochyta zinniae Allesch. Irregular, often confluent, dark-brown leaf spots on *Z. elegans* in Germany.
Corticium sp. See Thea.
Phyllosticta zinniae P. Brun. Angular to irregular brown, then olivaceous, leaf spots on *Z. elegans* in France.
Puccinia melampodii Diet. and Holw. Powdery gray-black rust sori on irregular brown sunken leaf spots on *Z. tenuiflora, Eleutheranthera ruderalis, Synedrella nodiflora, Tridax procumbens,* and *Spilanthes oleracea* in Mexico, West Indies, and Central America.
ZIZANIA. WILD RICE. Aquatic grasses.
Uromyces coronatus Yosp. Brown rust pustules on leaves of *Z. aquatica* in Japan.
Ustilago esculenta P. Henn. Smut sori in the heads of *Z. aquatica* and *Z. latifolia* in China, Japan, Formosa, and Russia. These smut masses in the young condition are sold for food in China.
ZIZYPHUS. JUJUBE. Shrubs and small trees grown for their handsome foliage and some species for edible fruit.
Ascochyta ziziphi Putt. Circular, then irregular dark-brown leaf spots on *Z. spina-christi* in Brazil.
Cercospora ziziphi Petch. Yellow, then brown, leaf spots on *Z. oenoplia* in Ceylon.
Cladosporium ziziphi Karst. and Roum. Leaf spot on *Z. jujuba* in India and Amboina.
Cronartium zizyphi Syd. and Butl. Dull-brown rust pustules on leaves of *Z. oenoplia* and *Z. rugosa* in Ceylon, India, and Indo-China.
Hyalodema evansi P. Magn. Galls on stems and petioles of *Z. baclei* and *Z. mucronata* in the Union of South Africa. The fruits are also deformed.
Phakospora zizyphi-vulgaris (P. Henn.) Diet. Black rust pustules on leaves of *Z. jujuba, Z. rotundifolia,* and *Z. sativa* (*Z. vulgaris*) in India, Formosa, and Japan.
Phyllosticta zizyphi Thuem. Irregular gray-ochraceous leaf spots on *Z. vulgaris* in Portugal.
Septoria capensis Wint. Gray to grayish-white leaf spots on *Z. mucronata* in the Union of South Africa.
Septoria jujubae Trav. and Spessa. Small irregular ochraceous to dull-brown leaf spots on *Z. jujuba* in Portugal.
Septoria zizyphi Sacc. Pale ochraceous to gray-white leaf spots on *Z. vulgaris* in Spain and Italy.
Uredo belkameandae P. Henn. Brown leaf rust on *Z. jujuba* in India.
Uredo zizyphi Pat. Brown leaf rust on *Z. spina-christi* and *Zizyphus* sp. in Indo-China, Abyssinia, and Brazil.
ZOYSIA. Low perennial grasses used for lawns and putting greens.
Puccinia zoysiae Diet. Powdery black rust pustules on leaves of *Z. pungens* in Japan.
ZYGOPHYLLUM. Shrubs, sometimes cultivated.
Aecidium kuntzii Kaernb. and Wint. Leaf rust on *Z. atriplicoides* in Turkestan.
Aecidium lagena Sorok. A rust deforming leaves of *Zygophyllum* sp. in Central Asia.
Cercospora zygophylli S. Szembel. On leaves of *Z. fabago* in Russia.
Erysiphe taurica Lév. See Althaea.
Septoria zygophylli Syd. Subcircular dull-brown, then gray-white, leaf spots with red-brown margins on *Z. fabago* in Germany.
Uredo zygophylli P. Henn. Brown rust pustules on leaves and stems of *Z. cornutum* and *Z. decumbens* in Algeria, Tunis, and Egypt.
Uromyces trollipi Kalchbr. and MeO. Cinnamon-brown to black rust pustules on leaves of *Z. foetidum* in the Union of South Africa.
Uromyces vesiculosus Wint. Cinnamon-brown to black rust pustules on leaves, stems, and fruit of *Z. billardieri, Z. ammophilum,* and *Z. glaucescens* in Australia.